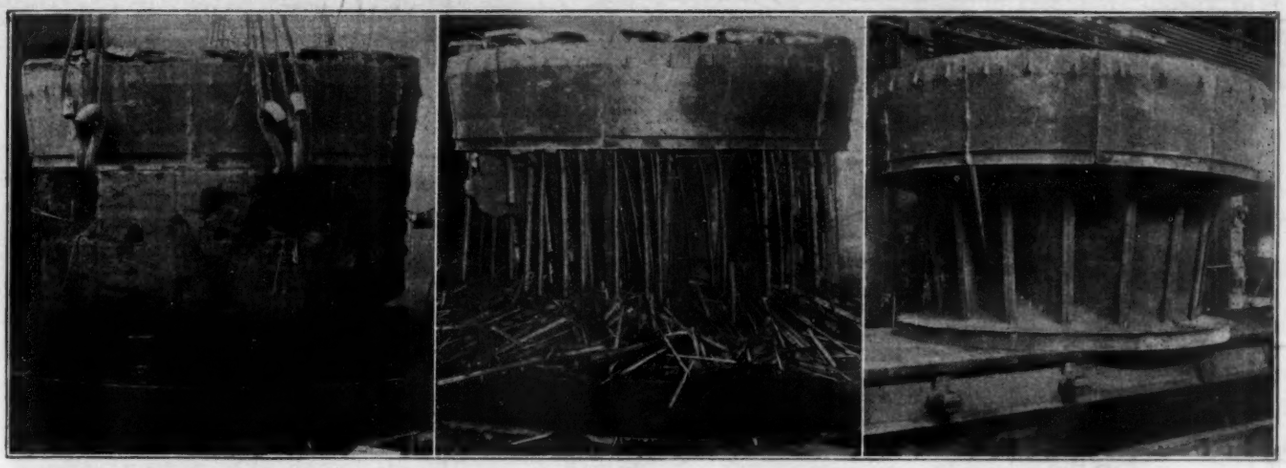

Fig. 1 (Left)—Hydraulic turbine runner before water cleaning. Total weight 110 tons. Fig. 2 (Center)—Same casting after 1 hour and 40 minutes. Fig. 3 (Right)—Completely cleaned, casting weighs 40 tons

Cleaning Castings Hydraulically Proves Economical

By E. C. Barringer

COMPARED with the old hand method, the cleaning of castings by hydraulic pressure at the Allis-Chalmers Mfg. Co., Milwaukee, is a matter of minutes to hours. Castings up to the largest size poured by this manufacturer of turbines, motors and heavy machinery of every sort, are swung by a traveling crane into a concrete chamber and deposited on a turntable. A workman pushes a button and a three-section telescopic roof closes. Another button and the doors at one end swing shut. A third button and a 6-stage centrifugal pump unlimbers.

A stream of 425 pounds pressure, powerful enough to drive through a heavy plank surges through a nozzle balanced so well that one man directs it. The flint-hard core is dissolved as though it were so much sugar and a flood of ink-black water comes rushing out and down into the settling basins below. Gaggers and short lengths of rail, used as supports, come hurtling out. In an incredibly short time the casting is entirely cleaned, ready to be lifted out and sent to the machine shop.

The saving in labor and time is difficult to calculate, but even conservatively it fulfills a cost man's dream of heaven. In general two men now do the work of 60. A hydraulic turbine runner, for example, weighing 110 and 40 tons before and after cleaning, is now handled in 14 instead of 300 hours. Steps in the cleaning of such a casting are shown in Figs. 1, 2 and 3. The sand and water are completely recovered. The cleaning end of the main foundry building is the least dusty and most orderly portion. Castings are routed through so expeditiously there is no accumulation; even taking into consideration the chamber and the auxiliary equipment, all of which are housed within the main foundry

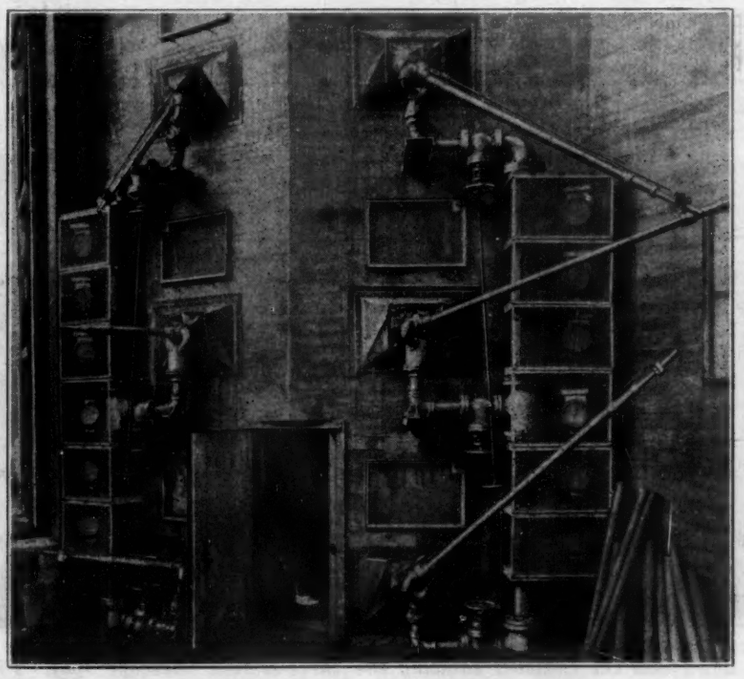

Fig. 4—Front of operator's house and nozzle stands

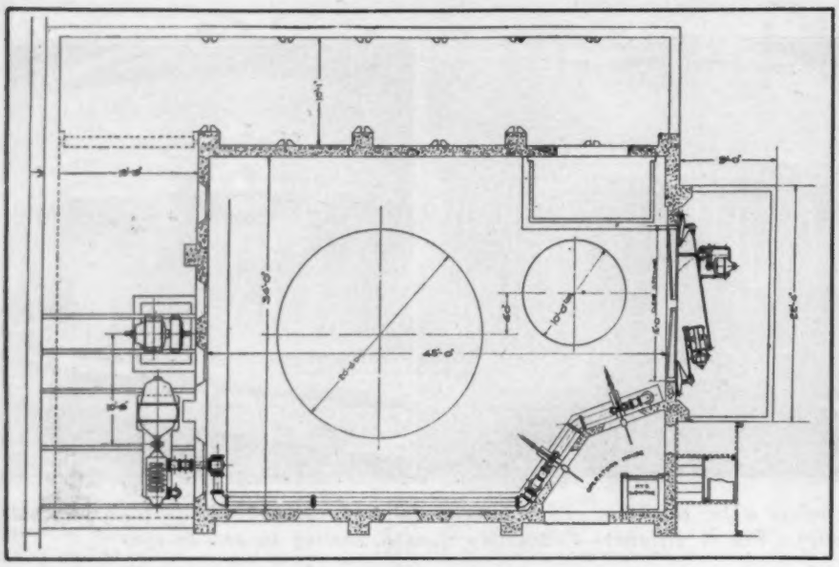

Fig. 5—General plan of hydraulic cleaning chamber showing location of turntables and nozzles

building, the cleaning department requires less space than heretofore.

The idea behind hydraulic cleaning is not new to Allis-Chalmers engineers but the actual application is. Cleaning castings by hand had always been recognized as dirty, disagreeable and dust-raising work and theoretically the use of high pressure water seemed superior, but not until the bulge in business in 1923 did the necessary prompting appear. Labor was scarce, the building trades offered employment out of doors at good wages, and a day or two was the most that even foreign workmen would wield a pick on a core. Casting work was farmed out to foundries from Birmingham to Minneapolis, and production of the main Allis-Chalmers foundry was sharply curtailed by cleaning room congestion.

So in the fall of 1923, the company's engineers were galvanized into action. The basic thought comprised a turntable bearing a casting on which a stream was played from a tower. For development purposes a 16-inch boring mill with a table was rigged up. In this small way the idea was seen to be feasible. An outdoor experiment was conducted whereby a casting was suspended from a locomotive crane and a 255-pound stream played upon it. It so happened that the first casting thus cleaned was a pump chamber, and even at this crude stage the time required was 18½ minutes, compared with 16 hours by the old method.

Authorization was then forthcoming for a temporary washing pit which was installed outdoors. A wooden tower for the operators was constructed and a turntable placed below a 30-ton yard crane. Large castings were mounted on a turntable on a 100-ton flat car, the car backed up against the tower, the motor turning the turntable was plugged in and the castings were successfully and swiftly cleaned. This temporary plant was operated through 1924 until cold weather interfered, but meanwhile a permanent plant within the main foundry building had been designed.

This permanent plant is a concrete chamber in the center bay of the main foundry building, 15 feet from one end. Inside, it is 34 feet wide, 45 feet deep and 20 feet high. An extraordinarily good mixture was used for the walls, which are 1 foot in thickness, and one man was kept ramming continually. To minimize erosion, the lower portions of the inside walls in the direct line of the nozzles, are lined with plates. The roof, which is of steel plates, is in three interlocking sections, with wire glass inserts for three lights in each section. Each section is operated by its individual motor but the three motors are controlled by one button. In 40 seconds the roof can be opened or closed. Fig. 6 is a view down into the chamber with the top doors open.

The two doors, shown in Fig. 8, are 20 feet high and give a clearance of 15 feet across. Remote push button control operates the 2-horsepower motor which works with a bell crank motion, using a gear reducer manufactured by the Foote Bros. Gear & Machine Co., Chicago. One door leads the other and only 10 seconds is required for opening or closing. Canvas belting at the joints prevents leakage.

Just inside the doors, as shown in Fig. 5, is a 10-foot table mounted on roller bearings and driven by a 25-horsepower motor. This table sustains a weight of 100 tons. To the

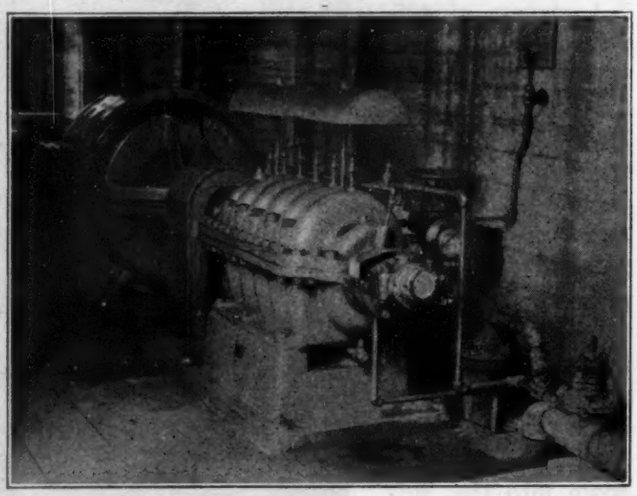

Fig. 6 (Left)—A view down into the chamber showing the three-section telescope roof. Fig. 7 (Right)—Water is supplied by a 4-inch 6-stage motor-driven centrifugal pump

rear of this smaller table, and also off center, is a 20-foot 300-ton table driven by a 35-horsepower motor. This larger table is mounted on 22-inch rollers, which are not affected by sand. Surrounding both of these tables are steel pans with 1½-inch openings which admit the sand but catch the gaggers.

In one corner, equally distant from each of the tables, is the operators' house. As shown in Fig. 4, a front view of the operator's house, there are two stands with three nozzles each mounted at three levels, one set playing upon the larger table and the other on the smaller. Both of the tables are worked together and one nozzle at a time is used on each of the tables. The castings on the larger table are subjected to the play from a 1 1/16-inch nozzle and on the smaller table from a ⅝-inch nozzle.

The water for these nozzles is supplied by a 4-inch 6-stage centrifugal pump direct connected to a 300 horsepower wound rotor induction type motor, as may be seen in Fig. 7. At 1765 revolutions per minute this pump supplies 800 gallons of water per minute at a 900-foot head. Using two nozzles gives a pressure at the nozzle of 425 pounds. On the horizontal plane the nozzles are carried on ball bearings, while the stream itself balances them on the vertical plane. The longer nozzles, which are 7 feet, are counterbalanced. Within the nozzle mouths are guide vanes to prevent a swirling motion of the water.

Beside each stand of nozzles is a series of six flood lights adequately protected by wire mesh as illustrated in Fig. 4. In operating the nozzles the two men employed stand behind ¼-inch wire glass windows further protected with 1½-inch mesh screens as their first line of defense against flying gaggers and sand. The constant accumulation of sand on these windows is washed down by a manually operated water curtain. The three heights of nozzles necessitating many quick changes, it was found a decided economy to install a hydraulic elevator in one corner of the operators' house. The discharge from the elevators is all the makeup water necessary for the operation of the chamber; in fact, there usually is an overflow. Push buttons in this house control the motors operating the top, doors, pump and turntables. As a safety measure, the door leading from the operators' house into the chamber proper is so interlocked with the pump control that the door must be made secure before the water can be turned on.

The floor of the chamber tapers toward the end of the sump. Beneath the floor are two tanks, one 10 feet wide by 60 feet long and the other 15 feet wide by 34 feet long, each 12 feet deep. Together they hold 70,000 gallons. As the sand-laden water drains through the mesh of the floor pans into the first tank 3 feet below it encounters a series of seven baffles, made from ⅝-inch boiler plates. In order to catch the floating as well as the heavy material, the sandy mixture alternately passes over and under these baffles. Ninety per cent of the sand is collected by the first baffle. Some sand drifts

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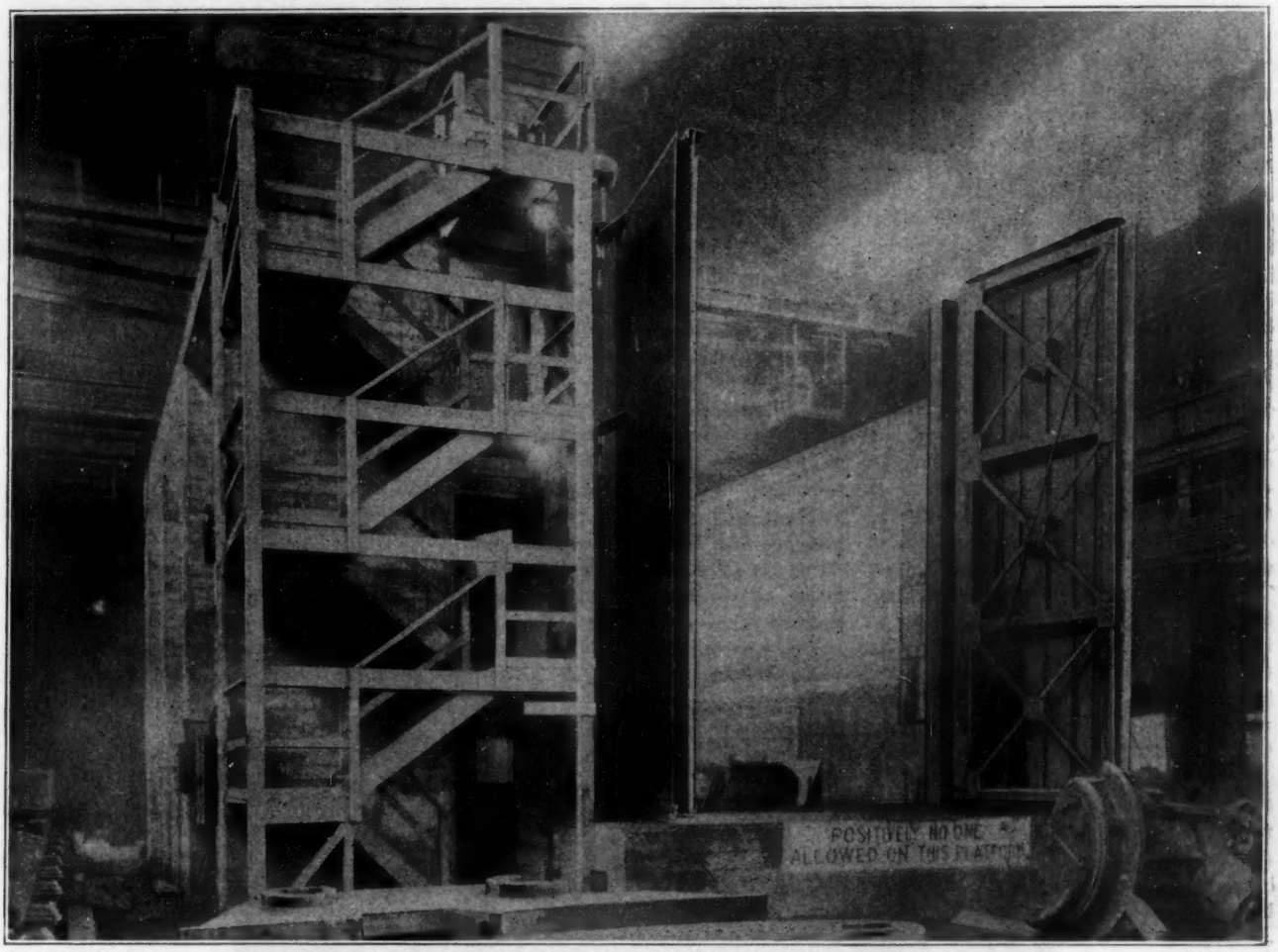

Fig. 8—Hydraulic cleaning chamber with the large end doors open and roof telescoped. Entrance to the operator's house is at the left

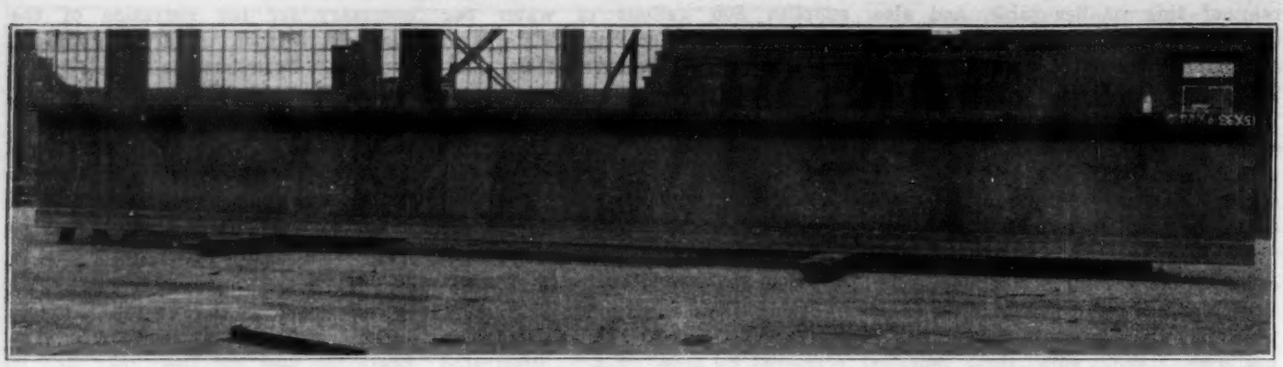

Fig. 1—An overhead crane girder which has been fabricated by electric arc welding. The method is proving most economical

Arc Welding Structural Steel

Traveling Crane Girders and Small Buildings Are Fabricated in Shop and Field Without Riveting—Rigid Tests Indicate High Strengths Are Obtained—Method Affords Considerable Economy

By R. A. Storm

CRANES for handling hot metal in steel mills first were built by the Morgan Engineering Co., Alliance, O., and were the invention of Thomas R. Morgan, Sr., the founder of this company. The writer knows of no riveted connections in which rivets are subjected to more severe treatment than in the girders of the open-hearth charging machine crane and the soaking pit charging crane. The soaking pit charging machine, for instance, is used to place ingots in the soaking pit and to transfer them from the soaking pit to the buggy which conveys them to the blooming mill.

In the fabrication of girders for these cranes, it is found physically impossible to make hot driven rivets completely fill the rivet holes. The shrinkage of the rivet precludes this, as is illustrated in Fig. 5. It also is impossible to prevent the oxidizing effect of the free oxygen of the air on the rivet after heating. To overcome these conditions, we investigated the possibility of driving the rivets cold, using a cold pressed rivet to avoid a scale formation. Having heard that one company drove rivets cold, up to and including 3 inches in diameter, we obtained information regarding machines and methods. In this connection we were told that it was necessary to anneal rivets up to and including ¾-inch, but above that size, the anneal was unnecessary.

We were interested to learn why it was necessary to anneal a ¾-inch rivet and not a ⅞-inch. No reason could be given except that experience showed it necessary to anneal up to and including ¾-inch. We then inquired of rivet machine manufacturers what style machines were built to perform this class of work, but we were unable to locate a desirable type, since it was necessary to use a portable machine. We then decided to continue the use of hot rivets but to ream our rivet holes only 1/32 inch over-size, instead of the customary 1/16 inch, as we believed that this would provide a better riveting condition. Now all the holes in crane girders for shop driven rivets are reamed 1/32 inch over-size in our fabricating shop, and by this method, we are able to increase the efficiency of our riveted connections. It was necessary, however, to use cold pressed rivets, as they seemed to be more uniform in size. It is imperative that rivets be not over-size, as a ¾-inch rivet will expand almost 1/32 inch in heating.

During the war, the General Electric Co. was building a heavy-duty spot welder at its

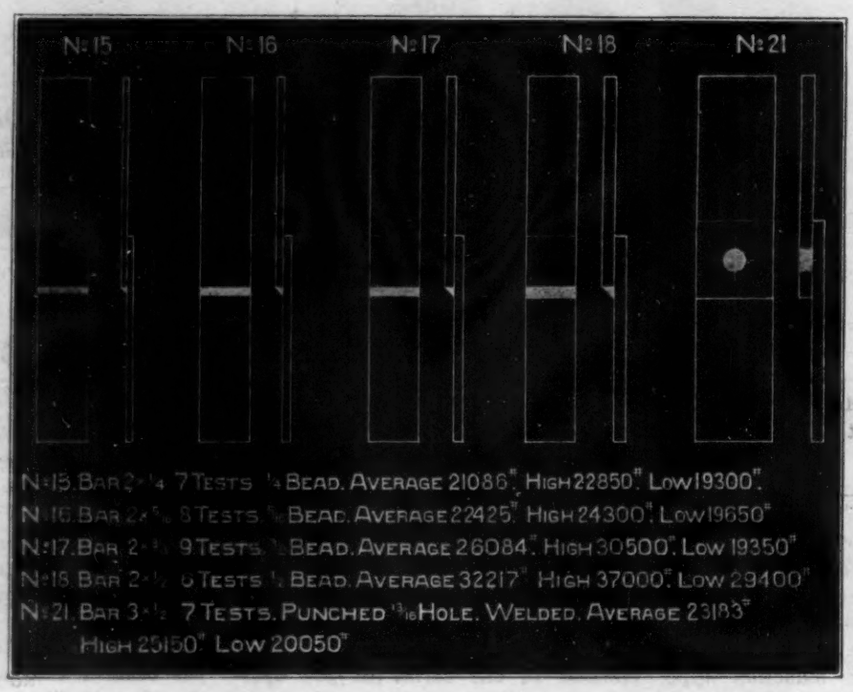
№15
№16
№17
№18
№21
№15 Bar 2 × ¼ 7 Tests ¼ Bead. Average 21086". High 22850". Low 19300".
№16 Bar 2 × ⅝ 8 Tests ⅝ Bead. Average 22425". High 24300". Low 19650"
№17 Bar 2 × ¾ 9 Tests ¾ Bead. Average 26084". High 30500". Low 19350"
№18 Bar 2 × ½ 6 Tests ½ Bead. Average 32217" High 37000". Low 29400"
№21 Bar 3 × ½ 7 Tests. Punched 13/16 Hole. Welded. Average 23183"
High 25150" Low 20050"

FIG. 2—RESULTS OF TESTS CONDUCTED TO DETERMINE AMOUNT OF WELD REQUIRED TO COMPENSATE FOR DIFFERENT SIZED RIVETS

From a paper presented at the annual meeting of the American Institute of Steel Construction at White Sulphur Springs, W. Va., Nov. 11-14. The author is manager structural department, Morgan Engineering Co., Alliance, O.

Schenectady works to weld plates up to 1 inch thickness. A visit was made to Schenectady while the machine was in the experimental state. At that time, the difficulty was to provide electrodes to withstand the pressure required to bring the metal in contact and which was necessary to perform the welding operation successfully. Later a heavy-duty welding machine is said to have been built and shipped to Hog Island, but we have not learned what service it gave.

During 1922, 1923 and 1924, the Morgan Engineering Co. completely rebuilt over 600 locomotives for ten different railroads. All of these were Class 1, 2 and 3 repairs. Class 3 repair includes "necessary repairs to firebox and boiler and complete mechanical overhauling." Classes 1 and 2 include "new boiler, new back end, or new firebox with complete mechanical overhauling." It was found that all railroads placing the contracts with us for this class of work permitted electric arc welding to be used in repairing the stayed part of the boilers. Consequently it was necessary for us to build up a large welding force to take care of requirements in that line. We, of course, observed the efficiency of the electric arc welded joint in some of the sheet work in the fire boxes, and noticed a number of cases where the electric arc weld had outlived the new sheets placed in the fireboxes when the locomotive had been overhauled. Many people fear the effects of impact and vibration on an electric weld but a number of railroads use this method successfully to repair broken locomotive frames. It is hard to conceive a more severe test on an electric weld than this one. Our experience in welding caused us to experiment and make tests on the electric welded joint to replace where expedient the riveted joint used in fabricating structural steel buildings.

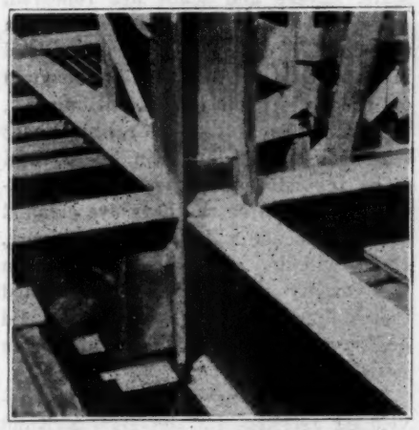

FIG. 3—A TYPICAL ELECTRIC ARC WELDED COLUMN CONNECTION IN A STEEL STRUCTURE

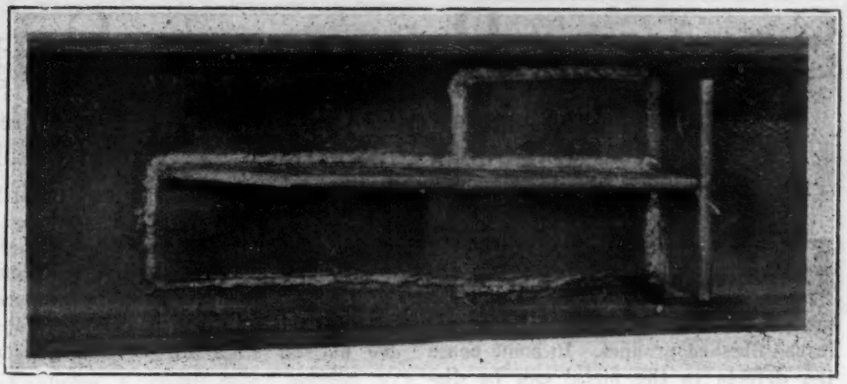

FIG. 4—THIS SHOWS THE TYPE OF SHELF ANGLES USED IN AN ARC WELDED BUILDING. THE MEMBERS WERE DESIGNED FOR RIVETED CONSTRUCTION

Realizing the inefficiency of the riveted connection where the rivet is placed in tension, such as plates on the bottom of spandrel beams, we made several test pieces, submitted them to an overload and determined that the electric arc weld is far stronger than the calculated strength of a rivet in tension. In replacing the rivet used in tension, our next thought was to weld the shelf angles and connection angles. We again conducted a series of tests, to determine the amount of weld required to compensate for the different sized rivets ordinarly used.

The results of these tests are shown in Fig. 2. It should be pointed out here that in all the tests conducted, no attempt was made to favor the weld. The illustration shows that the welded joints in this series of tests were subjected to a severe bending moment. They were subject to an eccentric pull, and the specimens having been lapped, would of necessity bend where lapped, when the force was applied. From the result of these tests, the equivalent strength in shear was compiled. One-half inch was added to the theoretical length of the weld and rivet values were figured at 10,000 pounds per square inch. The shear strengths are as follows:

Rivet diameter, inches	Length of ¼-inch bead, inches	Length of ⅜-inch bead, inches	Length of ⅜-inch bead, inches	Length of ½-inch bead, inches
½	1½	1⅜	1¼	1⅛
⅝	2	1⅞	1⅝	1½
¾	2⅝	2½	2¼	1⅞
⅞	3⅜	3¼	2⅞	2⅝
1	4¼	4	3½	3

Having made a study of this art, and consulted a number of structural engineers, acquainting them with the result of our tests, we decided that we were justified in adopting this method

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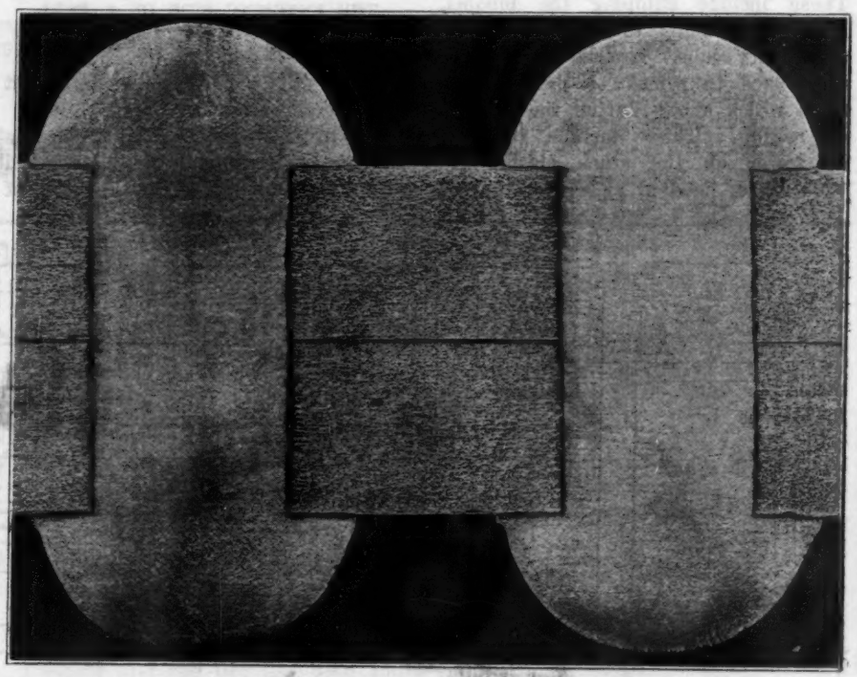

FIG. 5—CROSS SECTION OF A RIVETED JOINT ILLUSTRATING THE SHRINKAGE OF HOT DRIVEN RIVETS UPON COOLING. THE RIVETS DO NOT FILL THE HOLES

Scraper Removes Surface Flaws

Vertical Knives Operated by Compressed Air Clean Sheet Bars and Billets While in Transit Through Roll Trains of the Continuous Type—Elimination of Scale, Scabs and Slivers Increases Yield of Finished Product

EACH succeeding year the manufacture of steel into various forms brings forcibly to the attention of the steel industry the defects in the finished product. In some cases the defects in the metal can be discovered before reaching the stage of finished product. In many other cases the flaws, which result in the material being rejected or being classified under a different grade and sold at a lower price, are not detected until the final inspection is made and the maximum expenditure for labor, fuel and power is determined.

Many of the defects which appear at various points during the process of conversion from ingots to finished product can be traced to the metallurgical practice including melting, pouring, the design and condition of molds, etc. Some may be traced to the soaking pits or reheating furnaces, and many to the rolling. The most common defects are cracks which do not weld, seams, lines, scabs, blisters, slivers and scale, and these are due to the rolling operation.

Various methods are used in different plants to overcome many of the troubles arising from defective steel. These include chipping the blooms, billets and slabs to remove cracks, seams and scabs. Various means have been used to remove a part of the scale which arises during the process of rolling. These include the use of water on the steel, chilling to raise scale, flooding at various passes with high pressure water, use of steam, rock salt, etc. In addition, different ways of turning the blooms, billets, etc., have been tried and slabs are set on edge for certain passes

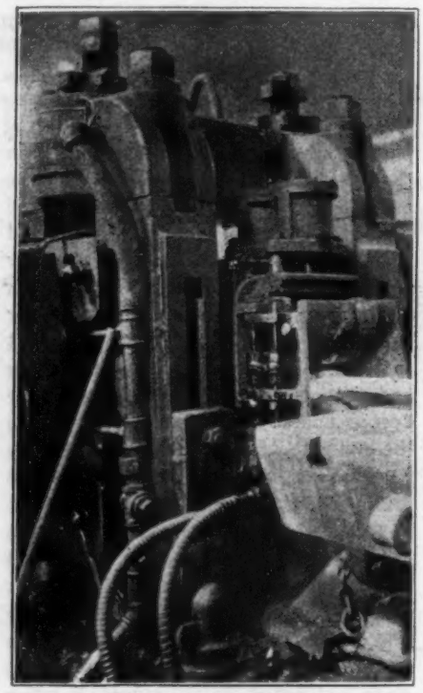

FIG. 2—POSITION OF THE SCRAPER ON THE ENTERING SIDE OF A ROLL STAND

to crack off the scale by a slight reduction in area.

For products where the surface is of extreme importance, billets and bars are pickled, and in the case of the manufacture of certain grades of automobile sheets, "breakdowns" also are pickled. In Europe, some of the steel companies are turning ingots in a lathe to remove the outside surface before being heated for piercing and conversion into seamless tubes. The object of this is to facilitate the operations of piercing, pilgering, rolling, drawing, etc., and to increase the yield from the ingot to finished product.

If during the rolling of billets scale, slivers and scabs are removed, there will be a material increase in the quality of finished product, and in many cases an increase in the yield of products from billets. Similarly, if during the process of rolling sheet bars for sheets and tin plate, and slabs for hot strip, the top and bottom and edges of the bars are cleaned of heavy scale and scabs and slivers, there will be a marked increase in the quality and surface of finished material, and an increase in the yield of the finished product made from bars.

A scraping device has been developed recently by the Bar & Billet Scraper Co., Inc., New York, which cleans billets and sheet bars during the process of rolling without reducing the tonnage produced. For billets, the scraping device consists of one or two units per billet mill, each unit consisting of two vertical and two horizontal acting knives, the first of which scrapes the billet top and bottom as it leaves the preceding pass, and the second of which scrapes the bil-

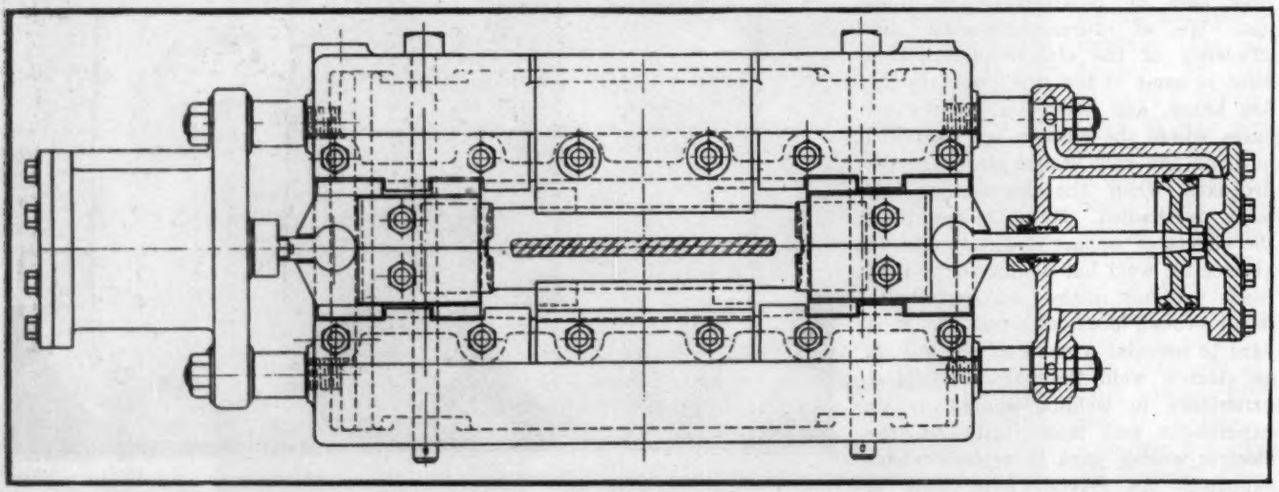

FIG. 1—FRONT CROSS SECTION AND ELEVATION OF A SIDE SCRAPER. THE EDGES ARE SCRAPED SIMULTANEOUSLY WITH THE FINAL CLEANING OF THE TOP AND BOTTOM SURFACES

let on the sides. The unit shown in Fig. 3 is between stands Nos. 3 and 4 of a six-stand continuous mill. The size of the billet which is being scraped is 2½-inch square, and the finished size on pass No. 6 is 1¾-inch square. In this particular installation, a second scraper is installed back of pass No. 6.

Knives Are Air Operated

The cylinders, which actuate the knives, are operated by air and can be so adapted as to be controlled automatically, closing the knives after the billet enters both sets of knives, and releasing them after the end of the billet has been pulled through. The power required for drawing the billet through the knives is small and is furnished by the rolls. The knives and their holders can be stripped out of the machine between billets during operation without interfering with the tonnage.

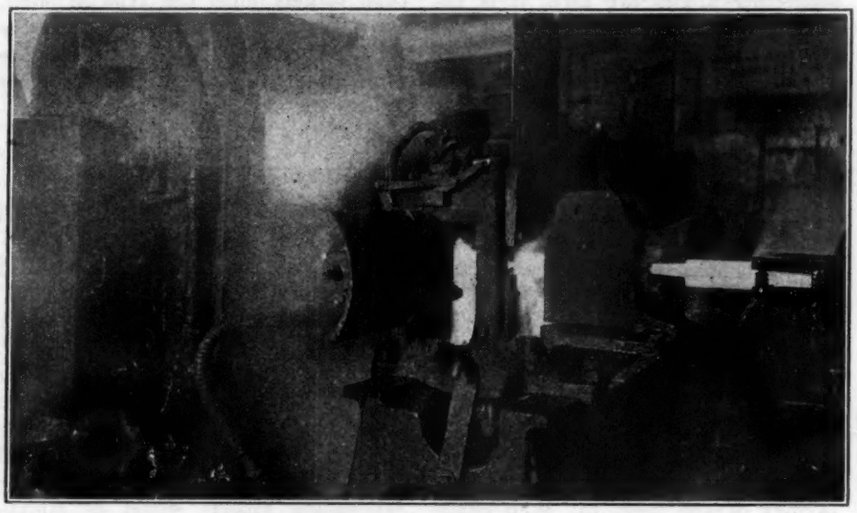

FIG. 3—SCRAPING DEVICE IN POSITION BETWEEN NOS. 3 AND 4 STANDS OF A CONTINUOUS MILL. A 2½-INCH SQUARE BILLET IS BEING SCRAPED

For sheet bars, the device consists of two sets of vertical acting knives, one preceding the other by about 9 inches and operated by air as in the case of billets. This also can be made automatic and the knives made to close and open in proper relation to the beginning and end of the sheet bar. For the best results on sheets bars, it has been found necessary to install two scraping units, one either in front of the last pass or next to the last pass, and the other preceding the final scraper by one or two passes. Fig. 2 shows the rolling of a sheet bar with the scraper on the entering side of No. 4 stand of a six-stand mill, scraping the bar at a thickness of 1-1/16 inches, the bar finishing 11.5 pounds a foot in stand No. 6. Fig. 5 shows this bar scraper in cross sectional side elevation, and Fig. 4 shows the same front elevation.

The apparatus necessary to scrape the side of the bars is comparatively simple, and in principle is the same as for the top and bottom except that only one set of knives is used. The side scraper is attached to and made an integral part of the second top and bottom scraping unit. In other words, the cleaning of the edges of the bars is done the same time the bar has its last scraping on top and bottom. Fig. 1 shows a front cross section and elevation of a side scraper.

When cleaning billets, if there are slivered places on any corner of the billet, or if there is a projecting fin on the edge of the billet, or as in many cases a rolled-in fin on top or bottom, the scraping knives will as a rule scrape off this projecting material similar to a tool in a lathe. Many of these slivers, fins, etc. are found in the sweepings after a rolling period. Samples of the scrapings when rolling sheet bar show a much coarser material at scraper No. 1 than at the succeeding unit. In the sweepings from No. 2 there will be found scabs, slivers and pieces of metal which have been scraped off the edges of the bar.

The knives used for scraping billets and bars are of special steel. No water is necessary on the scraper, and although the knives show color immediately after completing the scraping operation, they have an opportunity to cool and lose their color before coming in contact with the next piece of steel. The knives for bars will scrape 1000 to 1500 tons per dressing and the life has been found to have a range of from 12,000 to 15,000 tons production.

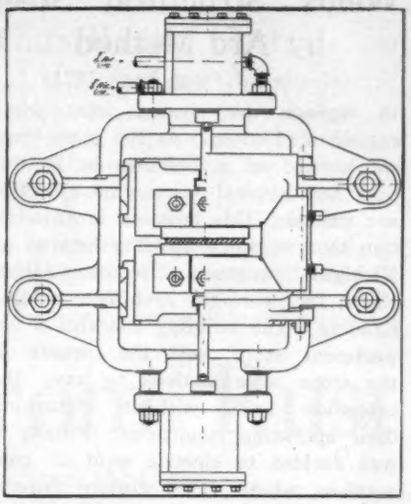

FIG. 4—CROSS SECTIONAL FRONT ELEVATION OF A BAR SCRAPER

The continuous type of mill lends itself readily to apply the standard scraper, but with certain modifications the device can be applied to almost any type of bar mill.

In the plant where the scrapers first were installed, and where they have been in operation for a number of years, there has been a marked improvement in finished material and a decided increase in yield from billets and bars to rods and sheets. The records of the company show that for rods and merchant products there has been an increase in yield of 1.98 per cent after using scraped billets and in the sheet mill department for a period of three years after installation of the scrapers the average increase in yield from sheet bars was 1.50 per cent over a similar period prior to their installation.

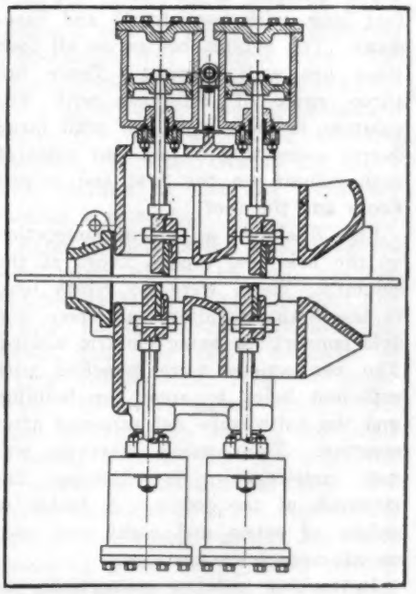

FIG. 5—CROSS SECTIONAL SIDE ELEVATION OF A BAR SCRAPER

Welds Structural Steel by Arc Method

(*Concluded from Page* 1271)

to replace the riveted joint when expedient to do so. At the same time, we learned of a building in Detroit that had several connections electric arc welded. This building is an addition to a 12-story building located on Michigan avenue, Detroit. Albert Kahn, Inc. were the architects on this building. The building contains a department store, and the owners of the store were anxious to have the extension built without disturbing their operating conditions. Finally it was decided to electric weld all connections where floor girders framed into the columns. In all, 103 girders were electric welded. The building department of the City of Detroit, required shop tests to be made, to determine the efficiency of the weld. Shop tests were made, and joints destroyed in the testing machine. The result of these tests satisfied the building department, and they approved the welding of these connections.

Suggests Welding Be Used

Having secured the contract for the fabricated structural steel to be used in the Peerless Auto Sales Co. garage, located in Canton, O., we proceeded to sell the idea of electric welding this steel frame and secured permission to completely electric weld the entire structure. As we employ the electric welding equipment manufactured by the Lincoln Electric Co., Cleveland, its electrical engineers offered several valuable suggestions on the welding of this building.

The building is 100 feet wide, 150 feet long, with two stories and basement. The outside beams on all four sides are wall bearing. There are three rows of columns, with five columns in each row, and with large beams connecting on all four sides of each column on the first and second floors and the roof.

Fig. 3 shows a typical connection on the first and second floors at the columns. There were no rivets used in the entire building, all shop and field connections being electric welded. The connections were punched with sufficient holes to erect the building and the bolts were not removed after erection. Their value, however, was not considerable in figuring the strength of the joints. A factor of safety of seven and eight was used on all column connections.

In making column connections on the roof, the columns were extended above the top of the beams and instead of using connecting angles where the roof beams frame into the web of the column, the beams were welded to the top of the column. Fig. 4 shows the type of shelf angles used in the structure. Attention should be called to the fact that this building although welded was designed for riveted connections. Many of the connections would have been modified if sufficient time had been available for redesigning.

In welding angles on the end of the beam, the one angle was placed on the beam and welded to the web of the beam and the other angle was welded in place. We then had the third bead placed in this connection joining the first two beads. There are a number of ways to effect a saving in material and labor where a floor beam frames to the column. Where connecting angles are used, it is not so important that the beams be the exact length. Were we to substitute a plate for the angles, we could save material and the linear inches of weld, or, again we can eliminate both the plate and the angles and cut beams to the exact length, and weld directly to column. With this type of construction, it would necessitate the use of shelf angles welded on the columns with holes in horizontal leg of angles and holes to match in the bottom of the flange of beams.

Savings Effected by Welding

It would be presumptuous to attempt to state what savings can be effected by this method of fabrication, as the savings depend upon the shop equipment and individual ingenuity. On the building in Canton, we were able to save approximately 25 per cent in our estimated shop labor. This saving no doubt, can be increased eventually when quicker methods of assembling materials are devised. When these beams were welded, we had three blocks of wood notched out to fit over the flange of the beams and the oustanding leg of the shelf angle. This obviated the work of a fitter for this operation. We then placed the beam on the top of the plate, and you can readily see that the services of a fitter also were unnecessary for this operation.

Our shop was equipped primarily to build crane girders and miscellaneous structural parts for a crane, and it possibly is not as efficient on a straight beam and column fabricated job as most shops. If such is the case, we can effect a greater saving on this type of structure. No doubt, it will be possible to reduce the size of some sections used in fabricating certain types of steel structures, as there will be no reduction of area in the welded joint. We decided to proceed with caution along this line, as it is possible to become too enthusiastic and have our enthusiasm confuse our reason. On the building in Canton, there were 780 field welds, or 358 feet, an average of 5½ inches to the weld. One welder was 120 hours performing the work. We used 110 kilowatt-hours of electric current for the field welding.

When an operator is laying a continuous bead on straight work, he can average from 10 to 12 feet per hour, with a ⅜-inch bead. The actual field welding time on this building was possibly 25 per cent of the total time. It is hardly possible, however, to use the linear feet welded per hour to estimate costs, as our costs will depend largely upon the type of joint, form of weld and the size of the bead. At the present time, we are fabricating the crane runway, but figures on the savings are not available at this time.

Girder Fabrication Simplified

To weld backs of angles to top and bottom edge of web plates, a continuous bead is used for a distance of 4 feet from each end and then intermittent tack welds are used. In Fig. 1 is shown a finished crane girder, with the exception of the stiffener angles. While it is not possible, at this time, to state the actual saving in shop labor in the fabrication of the girders, it is easy to see how fabricating girders would be simplified by substituting electric arc welding for riveting.

A fusion weld is not clearly so indeterminate as the force weld and a competent operator always can tell when he has an effectual weld. In considering the efficiency of a welded joint, the individual is an important factor, and we should endeavor to maintain a high standard among operators. We exercise extreme care in the selection of our operators and test to destruction certain welds of each operator weekly. A simple method for testing welds is to have test pieces made from two bars; bevel one end of each bar to 30 degrees, butt parallel bevel end of bars and weld. Break these test pieces in the weld with a sledge or by bending in a "V" block in a press. An examination then will disclose the efficiency of the operator. However, it is well to have standard test pieces made occasionally and pull in a standard tensile testing machine.

Rust: $300,000,000 a Year

EVERY 1000 tons of steel rusted away represents the loss of 2000 tons of ore, 4000 tons of coal, 500 tons of limestone and considerable magnesite, chromite, manganese, oxygen, acetylene, fuel oil and other materials. Many man-hours required in the assembly of these materials also are dissipated and add to the toll of rust.

Copper Cuts Repair Costs

USE of copper-bearing steel in freight car construction increases the repair interval and decreases the time lost in shopping cars. This conservation of labor and materials effects a saving of 31 per cent in repairs. Cars return to service sooner and remain there longer. Improved painting methods also reduce corrosion.

Saving Steel Cars From Rust

Extensive Tests Prove Economy of Copper-Bearing Steel for Open Steel Freight Cars—Pennsylvania Railroad Finds Car Baking Ovens Give a Durable Paint Coating

By M. E. McDonnell

AMERICAN industry is coming more and more to recognize the tremendous wastes due entirely to destruction through corrosion of metals. Engineers know that commercial steels vary greatly in their tendency to rust, and many tests have been conducted to develop resistants to this deterioration. Such tests, held on weighed commercial steel sheets in its Altoona, Pa., locomotive test plant in 1912, won over the Pennsylvania railroad to the use of copper-bearing steel for car roofs. The sheets tested were carefully analyzed both before and after a 6½-month period of exposure to the weather, results showing that the sheets containing copper suffered the lowest weight losses.

Still more extensive corrosion tests were made in 1916 at Pittsburgh by the American Society for Testing Materials, using No. 16 gage and No. 22 gage sheets of both plain carbon and copper-bearing steel. After 75 months' exposure, it was found that the average life of the copper-bearing No. 22 gage sheets as compared with the plain-carbon sheets was 49 months as against 23 months. These two tests induced the Pennsylvania lines to adopt copper-bearing steel for sheet work.

This railroad system has some 269,000 freight cars, of which 266,588 are of steel construction, 167,398 of these being all-steel throughout. Of the latter, 32,000 are all-steel box cars and can be fairly well protected by paint coatings. With the 135,525 open all-steel freight cars, after a number of years the sheets become thin and holes develop. Patching often is insufficient because surrounding sheets are liable to fail and because of excessive maintenance cost. It is better to apply Class I repairs, involving cutting all rivets, removing sheets and rebuilding the car body.

The age of cars between periods requiring this type of repair varies according to design and service. The accompanying table shows the cost of maintaining car bodies, in which the calculations are based on an average length of life of 10 years for the plain carbon steel. Columns 1 to 4, inclusive, are from actual data, with the fifth column averaging the first four. Estimates of materials and cost of maintenance for copper-bearing steel cars represent an anticipated 50 per cent greater durability, or 15-year life. No allowance is made for painting or for repairs to underframes, trucks or brakes. The increased cost of copper-bearing steel cars is obtained by applying the differential of $3 per ton prevailing between the price of plain carbon and copper-bearing sheets.

Steel Requirements Reduced

This table shows that the 135,523 cars involved would have cost $2,509,295.86 more if made of copper steel. The cost of Class I repairs for the plain-carbon over a 10-year period amounts to approximately $5,069,112.03. As this period may be assumed to extend to 15 years for copper-bearing steel the repair cost is reduced to $3,473,710.30, an annual saving of $1,595,401.73. This also gives an annual reduction of 22,385 tons of new steel required.

Some may wonder why copper is a prospective element in the manufacture of steel. Ordinary steel forms a light brown, loose rust on oxidation, while copper-bearing steel oxidizes on the surface to a dense, dark brown adherent coating. This coating is believed to act as a protection against rapid destruction by corrosion. A bright copper roof, as another example, has a rapid initial rate of corrosion, but the dark-green coating formed on exposure soon retards further progress. The same is true for both bronze and zinc, and rustproofing coating may thus be induced by use of a small percentage of an element or ingredient which on oxidation produces a protecting film. This is the action of steel containing copper.

Commercial steel for structural purposes usually receives a protective coating of red lead before shipment. Steel for rolling stock must be stored before it can be assembled, requiring a protective coat of some kind. The Pennsylvania railroad method is to apply a petroleum-oil coating containing resins and wax added for adhesive purposes. On withdrawal of the sheets from storage for use, the temporary coating is removed.

After construction also, exposed steel parts should be well painted. Experience teaches that the best air-drying paints contain suitable pigments, good oil, and a minimum of drying constituents, such as japan drier. However, paints made under these precepts dry slowly, are liable to collect dirt, and keep the stock out of service a considerable time. Excessive amounts of driers shorten the life of the paint, which has been proved by panel tests. After numerous tests by the railroad, it was found that paint films could be dried by

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Abstracted from a paper presented before the Altoona, Pa., meeting of the American Society of Mechanical Engineers, Oct. 7, and published in *Mechanical Engineering*, Nov., 1925. The author is chief chemist of the Pennsylvania railroad.

means of heat without artificial driers.

Laboratory oven tests on painted panels proved so conclusively the greater durability of baked coatings over air-dried that the Pennsylvania road constructed in 1912 at the Altoona shops, a baking oven for passenger cars. The first car painted received no applications of color varnish for 40 months thereafter, after which time the paint was still in good condition. Another car received baking class repairs three times over a 12-year period, at the end of which the paint was found in excellent condition.

Under the baking process, cars require repainting every 36 months, while the air-drying process covers but 18 months. The 14 days required to paint a new passenger car by air drying is reduced to but six days with baking. Thus the latter process decreases by 60 per cent the time which passenger cars must spend in the shops for painting.

These baking ovens of which there are now three at the Altoona shops, are 90 feet 3 inches long and will accommodate the largest cars in service, containing 2000 square feet of radiating surface. Temperatures of 250 to 260 degrees Fahr. are obtained under steam pressure of 125 to 150 pounds. At these temperatures, baking paints and priming and surfacing coats are dried in three hours. In practice, varnish and light-colored enamels used for the final coats are dried in the same length of time at 150 to 160 degrees Fahr. These coatings have been found to be unusually durable on all-steel passenger cars.

The success of the baking process with passenger equipment led to its adoption for freight cars in 1913. At that time 1100 coal cars were given one coat of baking paint, in which menhaden fish oil, and corn, cottonseed and soya bean oils were used with linseed and china wood oils, which was dried in an oven at South Amboy at 185 to 195 degrees Fahr. Six hours were required for drying and inspections were made repeatedly over five years. Results were so satisfactory that baking ovens for freight equipment were authorized and built at the Pitcairn shops in 1923.

These Pitcairn ovens differ from the Altoona installation in that there are three units over parallel tracks, each accommodating three freight cars at once. Each unit contains a coal-fired hot-air furnace piping hot air through 40 tubes by means of fans. The air to be heated is drawn from the top of the oven, passed through the tubes of the furnace, and forced back to the bottom of the ovens, in continuous circulation. The time required for drying depends on the temperatures maintained, operations at 225 to 250 degrees Fahr. demanding three hours, and at 275 degrees two and one-half hours.

Each of the 30 cars painted daily at Pitcairn receives two coats of paint, which is sprayed on. It is possible, to paint, bake and stencil cars in one full working day by this method, using two shifts in painting. The paint contains a large percentage of menhaden fish oil, linseed oil and china wood oil, but no artificial driers. It is estimated that the time saved by this operation is two days, giving two more days of revenue service per car. Unexpected delays due to failure of drying as a result of bad weather are also eliminated.

Extension of the baking process to other shops has been deferred pending the outcome of tests being conducted with the lacquer system of painting which revolutionized the automotive industry. The Pennsylvania railroad now has considerable equipment finished with lacquer, with which a car can be sprayed without difficulty. Such coatings appear to be durable and are cleaned more easily than varnish coatings. Lacquers can be quickly applied, successive coats being sprayed at intervals of about 30 minutes. It may be that their use will supersede the baking process in the future, just as baking has displaced the old-fashioned air-drying of paint coats for railroad equipment.

Rust Affects Steel Car Maintenance

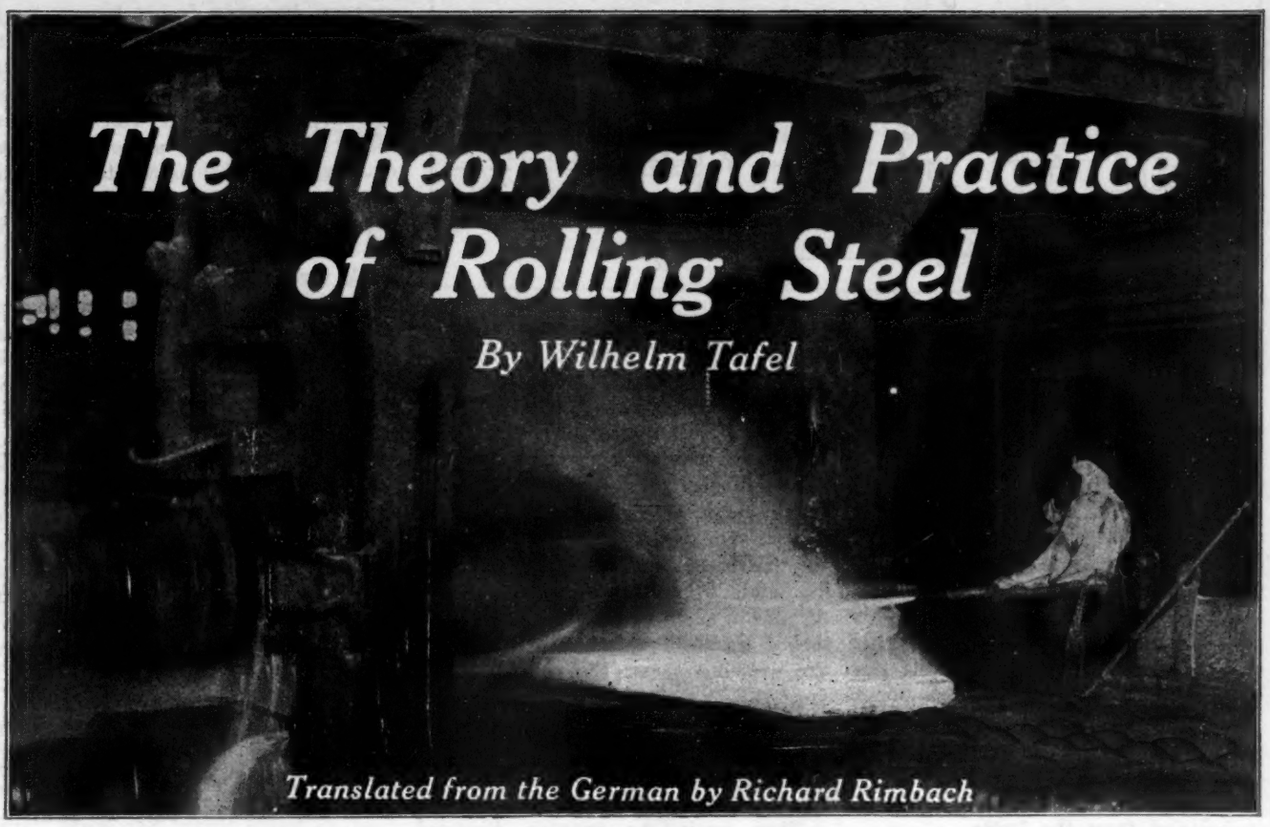
	Four-hopper Coal Car Class H21a	Two-hopper Coal Car Class Gla	Two-hopper Coal Car Class Glc	Gondola Car Class Gsd	Miscellaneous Hopper and Gondola Cars Classes Gs, Gsa, G22, H22, etc.*
Number of cars in service	34,854	30,071	6,183	22,431	41,984
Light weight of car, pound	50,700	39,500	39,000	40,700	.....
Finished plates and shapes in a new car:					
Weight, pound	13,293	9,292	13,124	9,675	11,346
Cost if plain carbon steel	$ 354.79	$ 248.00	$ 350.28	$ 258.23	$ 302.83
Cost, if copper-bearing steel	377.26	263.71	372.46	274.58	322.00
Increased cost per car, using copper-bearing steel	22.47	15.71	22.18	16.35	19.17
Class 1 repairs, per car basis:					
Finished plates and shapes, pound	10,670	7,461	11,081	7,830	9,261
Rivets, pound	870	793	730	870	816
Gross cost of finished plates, shapes and rivets, including stores expenses:					
Plain-carbon steel	$ 309.80	$ 225.12	$ 317.74	$ 252.85	$ 276.37
Copper-bearing steel	327.04	237.18	335.65	265.50	291.34
Credit for scrap	38.47	27.51	39.70	29.00	33.67
Net, Plain-carbon steel	$ 271.33	$ 197.61	$ 278.77	$ 223.85	$ 242.70
Net, Copper-bearing steel	288.57	209.67	295.95	236.50	257.67
Labor directly applicable	120.35	90.10	81.48	91.30	95.81
Shop expenses directly applicable	54.34	40.86	36.59	40.99	43.20
Total, Plain-carbon steel	$ 446.02	$ 328.57	$ 396.84	$ 356.14	$ 381.71
Total, Copper-bearing steel	463.26	340.63	414.02	368.79	396.68
Annual cost per car of class 1 repairs to finished plates and shapes:					
Plain-carbon-steel car, ten-year renewal	$ 44.60	$ 32.86	$ 39.68	$ 35.61	$ 38.17
Copper-bearing-steel car, fifteen-year renewal	30.89	22.71	27.60	24.59	26.45
Saving per car per year	$ 13.71	$ 10.15	$ 12.08	$ 11.02	$ 11.72
Total anticipated saving	$477,848.34	$305,220.65	$ 74,690.64	$247,189.62	$491,524.48
Plain carbon steel and rivets, pound per car per year	1,154	827	1,181	870	1,008
Copper-bearing steel and rivets, pound per car per year	769	551	788	580	672
New steel saved, pound per car per year	385	276	393	290	336
New steel saved per year, tons	6,709	4,155	1,216	3,252	7,053
Difference in cost between carbon and copper-bearing steel for the 135,523 new cars					$2,509,295.86
Total anticipated saving per year for the 135,523 cars due to slower rusting of copper-bearing steel					$1,595,401.73 / 22,385 tons of steel

*Average estimates.

To Build Rolling Mill

Northwest Steel & Metal Products Co., Seattle, has bought a site of nine acres on which a plant will be built, including a 16-inch and 10-inch Belgian mill, with electric furnaces. Structural steel, merchant bars and reinforcing material will be produced. An operating company has been organized under the name of the Northwest Rolling Corp. A. Goldberg is president.

Cadillac Malleable Iron Co., Cadillac, Mich., has increased its capitalization from $350,000 to $500,000.



The Theory and Practice of Rolling Steel

By Wilhelm Tafel

Translated from the German by Richard Rimbach

Chapter II—Continued

A ROLL drawing represents a section through the plane of the rolls and shows (see Fig. 38) the passes and the spaces between them which are known as the roll collars. If the roll collar is higher than the upper boundary line of the pass, it is called positive, if lower negative. Collars of the latter type generally lie in the upper roll while those of the positive type lie in the lower roll or vise versa. Frequently the positive and negative collars, as shown at the right of Fig. 38, change in the same roll.

The two collars between the outermost passes and the ends of the roll are called the outer, the others the inner collars. The number of the latter is with n passes on the roll, $n - 1$, the number of all collars is $n + 1$. The width of the roll collars, b_1, b_2, etc., depends on their height, h_1, h_2, etc; the larger the height the larger will be the lever arm which the side forces, caused by the pressure of the rolled material, will exert on the collars. An old rule of thumb method is, that in the inner collars b should be made equal to h as shown in Fig. 38. This can be considered as the largest necessary dimension for cast rolls. Where no considerable side thrust occurs, as with squares, flats with sufficient spread, angles, etc, the width can be made considerably less to save space. The same is true for blooming rolls of forged steel, in which the collars are made half the height. Where a large indirect draft occurs, the first rule must be observed. The outer collars generally are made somewhat broader than the inner collars, so that a guide or guide box at the edge of the roll will not interfere with the stands.

Rolls with positive collars are called grooved rolls while those with the negative collars are called tongued rolls. It is customary for the draftsman to show the rolls not with the circumference touching, but with a distance apart equal to the spring as shown in Fig. 38. The size of the spring s must therefore be estimated. In hot rolling with small roll diameters of about 7.874 inches the spring is about 0.059 inch and increases with increasing diameter to about 0.787 inch.

As far as possible all dimensions in the roll drawing are expressed by the diameters, because the roll turner works only with the calipers. For example, in Fig. 38 the dimensions for h_1 or 1.969 inches is not given, but the height of collar is expressed by giving the diameter of the roll at the bottom of the pass which is 23.622 inches. The position of the collar is marked by 27.559 inches. It is advisable to make both collars on either side of a pass the same height. If a neighboring pass requires collars lower in height, the collar is offset between the passes such as H in Fig. 38.

Roll diameters like tools which wear are not permanent. They diminish with the progressive wear of the rolls, which must be corrected by dressing. It is usual to put the dimensions of the new diameters of the unused rolls on the roll drawing and to leave it to the roll turner to diminish the diameters accordingly. Assuming that the taper of the pass in Fig. 39 is 3 per cent and the wear of this pass amounts to a maximum of 0.035 inch in width, 1.181 inches must be turned off the roll. As shown in Fig. 39, 1.181 inches diameter requires that the tool should cut in 0.5905 inch. With a 3 per cent taper this gives 0.018 inch on each side or 0.035 inch for the pass.

In Figs 37 and 38 line marked NN' is called the rolling line. It is an imaginary line in the plane of the rolls. To find the roll line of a pair of rolls the overdraft first is determined with the aid of calipers as described of a pass. Pass I in Fig. 38 gives it as 24.016 — 23.622 = 0.394

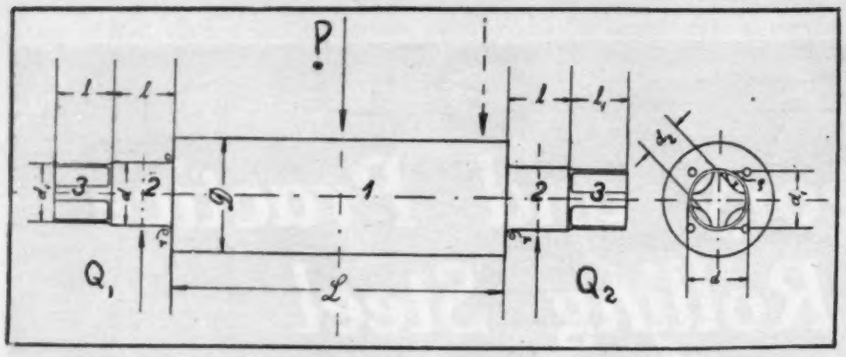


FIG. 36—DIAGRAM OF A ROLL SHOWING THE BODY, NECKS, WABBLERS, ETC.

inch. Then the amount of spring is determined as $0.7 \times \frac{23.622}{100} = 0.165$ inch. The rolls are laid on the floor or set up on a roll lathe above one another, so that a distance of at least 0.165 inch remains between their surfaces. The distance between the axes then is measured in this position. This would be 24.803 inches with the rolls shown in Fig. 38. The roll line lies so that its distance from the upper roll axis is $\frac{24.803}{2} + \frac{0.394}{4} = 12.5$ inches and from the lower $\frac{24.803}{2} - \frac{0.394}{4} = 12.303$ inches. These distances are called the average semi-diameters; the double amounts 25 and 24.606 inches, respectively, of the rolls. The average diameter of a pair of rolls or of three rolls placed one above the other is equal to the arithmetical mean of the individual diameters. Symmetrical passes are placed with their center line in the roll line. The latter is many times defined simply as the center of the cut-in passes in the pair of rolls. This definition does not hold for unsymmetrical passes.

All working diameters of the roll are measured with the aid of calipers and a scale. The calipers are set by tapping on one of the legs, so that when passing over the place to be measured the resistance is barely felt. The fine touch measurement is a particular art of the roll turner. Two methods are available for determining the average diameter of a roll. The first is with the aid of the roll drawing. In this case one or several of the diameters in a pass or collar are determined, such as 26.373 and 22.441 inches respectively in Fig. 38. As the drawing shows the roll is 27.559 and 23.622 inches respectively, been worn 1.181 inches. The average diameter of the lower roll in the present dressed condition is 24.606 inches — 1.181 inches = 23.425 inches.

Then again the average diameter can be determined on the rolls direct. The diameter is measured with the calipers, ash shown in Fig. 37, and to this is added the height of the stock *A* to get the average of the upper roll. The average diameter of a roll changes according to the height of the rod rolled. It is customary to determine it for a single rod and for the smallest rod rolled with the particular roll. Suppose in this case, the height of the rod is 0.157 inch and *Da* upper = 9.843 inches, *Da* lower = 9.449 inches. The average diameter of the upper and lower then can be determined as 9.843 + 0.157 = 10 inches for the upper and 9.449 + 0.157 =9.606 inches for the lower roll.

A roll with cut-in passes has different diameters in the passes and on the collars as shown in Figs. 38 and 40. The height of the profile

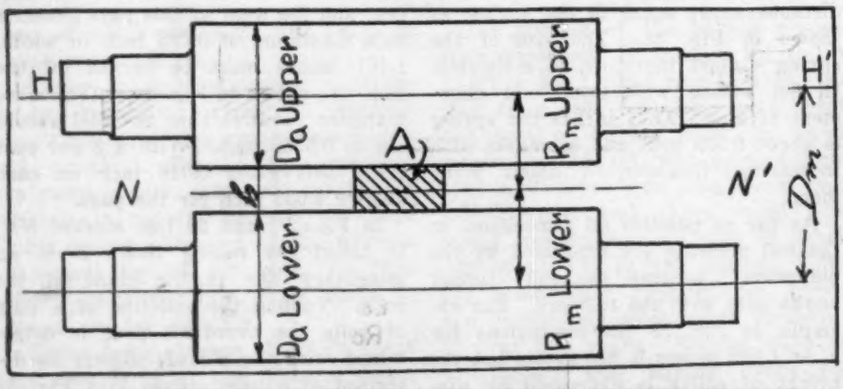


FIG. 37—METHOD FOR DETERMINING THE AVERAGE DIAMETER OF ROLLS

to be rolled, which determines the average diameter, is not known, or if it is, it is not always clear as to where the middle line of such an irregular pass is located. In such cases the average diameter can be determined only with the aid of the upper or lower roll belonging to the pair of rolls. The foregoing shows that the distance between the roll axis in the instance of the passage of the stock through the rolls, increases and decreases respectively in an amount equal to one-half the over or under draft. Assuming the distance *E* in Fig. 40 amounts to 27.559 inches and the over draft 0.394 inch, then the average diameter of the upper roll equals 27.559 + 0.197 or 27.756 inches and of the lower 27.559 — 0.197 or 27.362 inches. As it is difficult to measure the distance between the axes, it is advisable to begin with the diameter of the collars instead and to estimate the spring at about 1 per cent of the average diameter. We then have at the right of Fig. 40:

$$E = \frac{32.913}{2} + \frac{21.654}{2} + 0.276 = 27.56''$$

The overdraft can be determined from the adiacent pass as 23.819 — 23.425 = 0.394 inch and the average diameter of the upper and the lower roll is determined from this as previously mentioned.

If the height of a pass and the position of its middle or neutral line is known, the average diameter of the upper and lower roll can be determined from the working diameter as the sum of the latter and the height of the pass *h*. For example, at the right in Fig. 40, *h* = 3.937 inches and the distance of the middle or neutral line of the roll equals 1.969 inches. Therefore,

$D_{m\ upper} = 23.819 + 3.937 = 27.756''$
$D_{m\ lower} = 23.425 + 3.937 = 27.362''$

If a roll has different overdrafts, it also has different average diameters. If on the contrary the former is the same for the whole roll, the average diameter also is the same. If the average diameter of the existing rolls is determined in the foregoing manner, it can be chosen in the case of newly contemplated roll trains. The average diameter is the most important determination, which must be made for a new roll train. It either can be chosen from existing roll trains or from tables as given in Huette's *Handbook for Iron and Steel Engineers*, 1922 edition, page 768. The body of the roll, about 3 times the diameter, can be chosen from the same tables and the neck and wabbler determined from a table in the same handbook. The latter data using Fig.

Table I

Dimensions for Roll Necks and Wabblers

Kind of rolls	l	d	r	d_1	l_1	d_2	e
Heavy sheet	0.8d	0.68D	0.1d	0.94d ÷ 0.954	$0.5d_1$ + 1.575"	$0.66d_1$	0.3d + 0.394"
Light sheet	0.8d	0.74D	0.1d	0.94d ÷ 0.95d	$0.5d_1$ + 1.575"	$0.66d_1$	0.34 + 0.394"
Rod and merchant	d + 0.787" ÷ d + 1.969"	0.53D ÷ 0.55D	0.1d	0.94d ÷ 0.95d	$0.5d_1$ + 1.575"	$0.66d_1$	0.3d + 0.394"
Miscellaneous	0.9d + 0.787"	0.54D ÷ 0.58D	0.1d	0.94d ÷ 0.96d	$0.5d_1$ + 1.575"	$0.66d_1$	0.3d + 0.394"

36 as reference are shown in Table I.

Where such tables permit a certain leeway for the diameter it should be remembered that rolls of large diameter consume much work when running light. In addition large rolls spread more and elongate less than small rolls, as previously mentioned. Where it is not a question of spread, as with roughing rolls, an additional amount of energy is required. Under similar conditions with a large roll diameter the upsetting effect, and therefore the slip between the rolls, is larger. From the standpoint of the stretching effect and the power necessary for it, small rolls are more advantageous than large units. If considerable spreading is desired, as with hoops, skelp and many broad shapes, the diameter is carried to the upper limit. This is also the case, when rolling difficult shapes with unlike working diameters because the release stresses increase as the average diameter of the roll decreases. For this reason with beam and U-profiles the error is larger if the diameter is chosen too small, than if it is chosen too large. If the diameter is chosen to prevent roll breakages, it becomes a question of the calculation of the strength necessary. It is then proper to begin with the determination of the dimensions of the neck.

A roll as shown in Fig. 36 consists of the roll body, 1, which contains the passes; the two necks 2, which rest on the bearings; and, the wobblers 3, which serve to couple it with the adjacent roll. Rolls are subjected to torsional stresses, but as the necks are not broken by this as far as is known, it can be disregarded without introducing a large error. Rolls also are subjected to bending, and the body is stressed the most, when the roll pressure, that is, the force, which on the

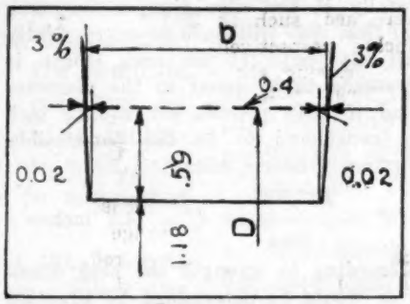


FIG. 39—HOW A ROLL IS TURNED DOWN TO RESTORE WIDTH

passage of the stock through the rolls in the center, attempts to push the upper roll up and the lower roll down. In the first case the so-called bearing reaction, that is, the forces Q_1 and Q_2 with which the bearings press on the necks and prevent the rolls from moving either down or up, $\frac{P}{2}$ are equal to —. In the latter case the bearing pressure Q_2 next to the edge where the force is located almost equals P. In one case the roll body must satisfy the equation:

$$\frac{P}{2} \times \frac{L+l}{2} = W_b \times k_b \quad (4)$$

where WB is the section modulus of the body equal to $\frac{3.1416\ D^3}{32}$, and, k_b the permissible bending stress. For soft and chilled rolls k_b can be taken as 1422 — 2844, for cast-steel rolls as 9954, for forged as 12,798 pounds per square inch. If on the contrary the roll pressure is applied at the end, the neck is the part endangered. It must satisfy the equotation.

$$P \times \frac{l}{2} = W_s \times k_b \quad (5)$$

W_s equals section modulus of the neck equals $3.1416D^3 \div 32$. In addition the average pressure per square inch of the neck cross-section should not rise above a certain amount. The necessity for designing the necks with regard to strength and the high roll pressures and still not make the housing too large, leads to specific pressures up to 7110 pounds per square inch in roll trains. This accounts for the considerable heating of the necks and the necessity for cooling them with water. It is desirable not to go above 2133, at the most 2844 pounds per square inch. These surface pressures are understood as being distributed over the whole horizontal projection

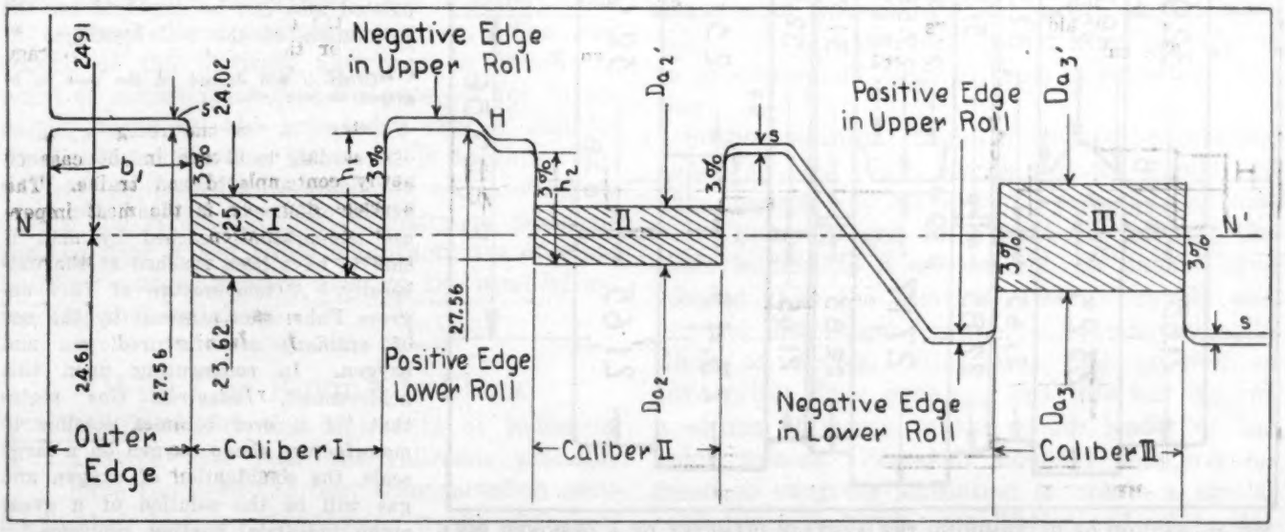


FIG. 38—PART OF A ROLL DRAWING. AT THE RIGHT IS SHOWN THE CHANGE FROM POSITIVE TO NEGATIVE COLLARS

of the neck ($1 \times d$). Actually the bearing presses from 60 to 80 per cent around the neck. The average surface pressures therefore are considerably higher.

The Fink formula on page 964, IRON TRADE REVIEW, Oct. 15, 1925 makes it possible to determine the theoretical work necessary for a pass. It is A foot pounds. As was previously shown, up to 30 per cent must be added for the slip between the entrance and exit of the stock. This sum is the total theoretical roll work and equals A_t foot pounds. Work is always the product of a force multiplied by the distance through which it acts. Therefore, it may be considered as consisting of the roll pressure P times the length of the stock after the pass S_2.

$$A_t = P_t \times s_2 \text{ or } P_t = \frac{A_t}{s_2}$$

If the foregoing calculated theoretical value is set at 1422 the Puppe tests on neck pressures result in values from 1635 to 2844. Much of the difference between the actual and the useful work figured from the neck pressures consists of neck friction, which does not influence the roll pressure. One will therefore not be figuring too favorably if 100 per cent of the foregoing theoretical roll pressure is added to that determined previously and therefore:

$$P_{att} = 2P_t = 2\,\frac{A_t}{s_2}$$

The numerical determination of the dimensions of a roll based on the strength of the necks and the body according to the foregoing follows: The size of the largest ingot cross-section to be rolled equals 9.843 inches × 9.843 inches; the draft equals 15 per cent; the rolling speed equals 7.55 feet per second; the elastic limit in compression equals 14,220 pounds per square inch, the roll work per second according to the foregoing, then:

$$A_{t\,sec} = 1.3^* \times 9.843 \times 9.843 \times 7.55 \times 14{,}220 \times l_b \frac{1}{0.85}$$
$$= 13{,}510{,}000 \times l_b\ 1.17$$
$$= 25{,}939{,}000 \text{ inch pounds}$$

$$P_{att} = 2\,\frac{25{,}939{,}000}{7.55 \times 12} = 573{,}000 \text{ pounds}$$

The most unfavorable case for the neck is when this force is applied totally at the edge because the neck on that side will have to carry nearly all the load. If the neck length is assumed to be equal to the diameter and if 2844 pounds per square inch is considered to be the permissible surface pressure, then:

$$d^2 = \frac{573{,}000}{2844} \text{ or } d = 14.2 \text{ inches}$$

According to strength the neck diameter would be determined by equation 5:

$$P_{att} \times \frac{l}{2} = \frac{3.1416\,d^3}{32} \times k_b$$

Again l is equal to d and material is assumed to be a forged steel casting, as is the custom for blooming mill rolls, therefore $k_b = 12{,}798$. According to this:

$$573{,}000 \times \frac{d}{2} = \frac{3.1416\,d^3}{32} \times 12{,}798$$
$$d = 15.23 \text{ inches}$$

The diameter of the roll body is found, if L is chosen $= 3D$ and if for simplicity of calculation $1 = 0.55$, $D = 0.18L$ substituted primarily from the table in Huette, from equation 4 on page 1279.**

$$\frac{573{,}000}{2} \times \frac{3D\,(1+0.18)}{2} = \frac{3.1416D^3}{32} \times 12{,}798$$

$$D^3 = \frac{573{,}000 \times 3.54 \times 32}{4 \times 12{,}798 \times 3.1416} \text{ approaches } 403$$

D approaches 20.1 inches

This is not the average diameter, but the smallest working one, below which the roll should not be permitted to go even after ensued wear. For wear 10 per cent is added.

Therefore the average diameter is $D_m = (20.1 + 0.85 \times 9.843)\ 1.1$ approaches 31.3 inches. In practice for the proposed purpose, considerably smaller diameters are chosen for the body and the necks. This is justifiable, if one considers that the value of $k_b = 12{,}798$. The foregoing substitutes give a safety factor of at least 5, while with an interchangeable tool, as the rolls represent, the worst case would be satisfied with a factor of 2. The diameters for roll bodies therefore would be $31.3\,\frac{\sqrt[3]{2}}{\sqrt[3]{5}} = 22.8$ inches and for necks $15.23\,\frac{\sqrt[3]{2}}{\sqrt[3]{5}} = 11.2$ inches which is about the usual minimum in practice. The roll pressure so calculated also can be employed for the calculation of the roll housings.

*Maximum 30 per cent addition for slip according to Fink.

**Often L will depend on the pass to be placed on the roll.

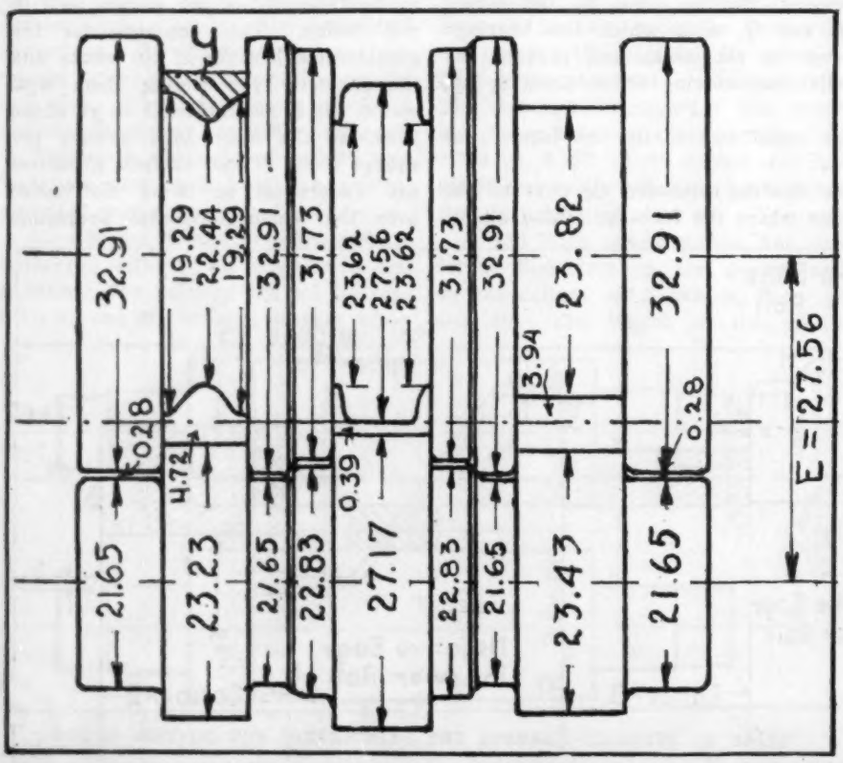


FIG. 40—METHOD OF DETERMINING THE AVERAGE DIAMETER OF A DESIGNED ROLL

According to "Fuels and Metallurgical Reports," published by the University of Leeds, England, the highest temperature reached by man is said to have been reached at the university. A temperature of 7677 degrees Fahr. was attained by the use of ordinary manufactured gas and oxygen. In commenting upon this achievement, *Industrial Gas* states that "if it ever becomes possible to manufacture cheap oxygen on a large scale, the combination of oxygen and gas will be the solution of a great many industrial heating problems."

Editorials

Fabricators Show Confidence

WITHOUT question the most significant act in the entire program of the American Institute of Steel Construction, held last week at White Sulphur Springs, W. Va., was the unanimous resolution adopted at the final session granting the board of directors ample financial support to carry on its work for the next year. This action came at the end of the third day, after members of the institute had had an opportunity to hear of the accomplishments of the organization during the past year and the opportunities for progress in completing the full year's program. That the more than 200 fabricators comprising the membership of the institute should back up their officers and directors by such convincing, substantial support, is indicative that they are behind the institute with both feet and that they mean business in advancing the interests of structural steel.

Of scarcely less importance was the interest manifested in the problem of selling. From the time in the opening session when President Kimbrough denounced present sales methods as barbaric up to adjournment, marketing problems were almost constantly in the minds of those attending the convention. Their interest was not confined to the mere technique of selling but embraced many other factors including extension of markets, educational campaigns, simplification and standardization, technical research, apprenticeship, specifications, etc.

The total result of the meeting is that fabricators are more fully aroused to the needs of their industry than ever before. Having recognized these needs, they have determined to satisfy them in a prompt and energetic manner. The past record of the institute has been so notable in point of achievement that the prospect for future needs, based on the knowledge that a suitable fund is available for its work, is bright. This princely support should go a long way toward enabling the structural steel industry to make up for the time it lost while manufacturers of other building materials were alert to the need of extending their markets.

Why Car Buying Is Slack

CONSIDERING the high rate of industrial activity this year the railroads probably have rendered the best transportation service in their history. Continuing weeks of freight loading exceeding or approximating one million cars have not caused congestion or invoked embargoes.

Expeditious transportation is something industry has been desiring and its benefits certainly outweigh its disadvantages, yet it may be a factor in the sharp decline in freight car buying this year. Cars have been loaded more heavily than in the past. Whether in fast freights or drags, cars have been used more intensively. They have been out on the line, moving, instead of being shunted around in yards. The extra loading has no more than offset the deterioration that befalls stored cars while a moving car suffers less than if it were being buffeted in yards. It is yard and not line service that makes car mortality high. Doubtless the increasing percentage of steel equipment is also a factor.

Intangible though they may be, these elements may help explain why the railroads are moving a record-breaking volume of freight while buying less than half of their normal car requirements.

Economics Working in Coal Strike

WITH his customary grandiose and loose manner in dealing with figures, especially as they relate to coal operators in time of union strike propaganda, John L. Lewis, head of the United Mine Workers, declares that the anthracite operators are to profit to the extent of $15,000,000 by the present strike. If such financial gains are to be made by those operators, which statement is declared to be absurd in the light of diminished sales of anthracite and the increase of substitutes, Mr. Lewis should have taken this fact in consideration when he refused to arbitrate and even refused to negotiate further.

Such a solicitous friend of the coal-consuming public as Mr. Lewis proposes to be should not have neglected to consider the possibility of coal users being gouged when he broke off negotiations leading to a settlement. He should have recalled that the inevitable law of supply and demand has been known to operate even in times of strikes. Bituminous coal as well as coke prices have gone up, and this has become a source of worry to the astute leader of the union miners. President Coolidge may recommend to congress legislation to create a special commission to furnish conciliation and arbitration

when employers and employes fail to get together after strikes are called, as was suggested in the report of the federal coal commission two years ago. When congress awakens to the fact that legislation has become necessary to eliminate strikes, perhaps Mr. Lewis finally will be spared the humiliation of seeing economic laws still operating, even though he has called a strike. In the end he may be glad to resume the negotiations, which he so indignantly brought to a close.

Tax Bill Is Starting Well

THUS far the ways and means committee of the house in drafting the new revenue measure to be placed in the lap of congress in a few weeks, has voted to repeal the publicity features of the present law, to abolish the present tax on the transfer by gift of property, and for the reduction of the maximum surtax rates on the higher incomes, besides eliminating a number of the excise and occupational tax levies. This much should be received with gratitude.

The fact that the committee has agreed to raise exemptions to the point where many thousands who have been paying taxes are denied the direct interest in the nation's expenditure of money and has refused to abolish the penalizing levy on capital stock indicates some lack of soundness in principles of tax-making. The bill now being framed will lack perfection, of course. It even may be shorn of much that makes it sound in the maelstrom of congressional assault and defense.

Nevertheless the outlook for the tax measure is fortunate in the fact that the treasury department has not tried to fix the rates, the President has not made dictatorial pronouncements concerning it, and most of all the country wants speedy action. The minority party has learned some things from the last election. It will not be possible for senators like Norris, Walsh and others to filibuster the measure to death. They will be too much alone. If the bill escapes serious manhandling after it finally is framed by the ways and means committee, the industrial world may feel grateful that at least as much has been accomplished.

Railroad Income Forecasts Buying

NEVER in their history have the railroads of this country been called to transport so much freight as they have this year. Traffic volumes have overleaped all past standards. The result is that the railroads have emerged from behind the black shadow of depressed finances into the sunlight of the best earnings they have ever known. During September, the last month for which there are available figures, the roads had net earnings of $134,500,000 a new record for any month in any year. October is expected to go that figure a few better. Its net may reach $142,000,000.

Although unmistakably in a far more favorable position than in any time in the recent past, the record of earnings in dollars does not give an entirely complete picture of the situation. Based on the estimated property valuation the net in September was at the annual rate of 5.42 per cent. For the first nine months the annual rate of return was less than 5 per cent. These are not flatteringly high returns. There is some difference of opinion about the aggregate valuation of the roads' property. The tentative value placed by the interstate commerce commission is $20,500,000,000, while the Bureau of Railway Economics, maintained by the railroads, places the total at $23,534,565,647.

Whatever the real valuation is or the rate of return upon it may be, two facts in the railroad situation, vitally touching the iron and steel industry, are clear. One of these facts is that this year's enormous traffic has caused much wear and tear upon road equipment and much must be done in the way of replacements and additions, sooner or later. The other fact is that for the first time in half a decade the railroads have the cash or adequate credit standing to buy what they need. There is every indication that a railroad buying movement of substantial proportions is getting under sail.

What Our Readers Are Thinking

World Trade Given New Impetus

RECENT developments pointing to political security and order in Europe will have a profound effect upon American business and economic interests. It is gratifying to note that our exports to Europe have increased from an annual average in 1910-14 of about $1,350,000,000 to more than $2,660,000,000 for the fiscal year 1924-25, a gain of 94 per cent, which is more than sufficient to make up the difference in price levels, and may be accepted as an indication of the rapid recovery of the buying power of that market.

Our distinctive ability to produce quality merchandise under mass production methods will not soon be successfully copied, and the advantageous position which we occupy in foreign markets as a result of our peculiar genius for mechanical and business organization will never be seriously challenged.—JULIUS KLEIN, *director of United States bureau of foreign and domestic commerce.*

The Reader's Page

Vol. LXXVII, No. 21 IRON TRADE REVIEW Nov. 19, 1925

Publicity Necessary—Even for the Markets for Steel

IRON and steel have been in such universal demand that many manufacturers and fabricators have taken it for granted no other materials could compete. Tremendous increase in production of steel and the country's apparently unlimited ability to absorb it, has had a tendency to give some makers and users a sense of false security. One group in the steel industry, the construction fabricators, realized some years ago that the manufacturers of other materials had pushed their sales campaigns until they were making serious inroads in their business. The American Institute of Steel Construction at its meeting last week took a step that should be of interest and importance to all branches of the steel industry. It multiplied by five its previous appropriation for educational purposes—telling the world the advantages of steel construction.

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The Business Trend

Higher Money Rates Reflect Trade Gains

By JOHN W. HILL, Financial Editor

ATTENTION has been focused upon the credit situation by the advance of rediscount rates to 4 per cent by two federal reserve banks, Cleveland and Boston. Wall street rightly or wrongly has interpreted these developments as a warning to apply the brakes upon excessive speculative enthusiasm. Business has indulged in no speculative spree and consequently is not concerned with the stock markets gyrations nor frightened by the small rise in rediscount rates.

HIGHER rates have come about, in fact, for for the simple reason that business activities have been increasing and the demand for commercial credit has been growing. Open market interest rates have been rising for months.

THE Cleveland reserve bank rate has been at 3½ per cent since August, 1924. At that time member banks in the Fourth district were borrowing only $15,000,000 from the central bank at Cleveland. Now they are borrowing $76,000,000. Then the ratio of cash to liabilities was 86 per cent. Now it is 74.5 per cent. Commercial paper rates have gone up by 30 per cent.

COMMERCIAL banks are loaning more money to their customers, and in turn are borrowing more at the reserve banks. In the Fourth district, bank loans have increased because of great activity in the steel mills, coal mines, and automobile shops.

BUT nowhere, except for an isolated spot in Iowa where a few country banks have failed, is there any hint of credit stringency. By all standards, interest rates are still low. The advance in the rediscount rates is a signal that business expansion is getting under way, not that it is likely to be stopped soon by dear credit. The vast federal reserve credit reservoir is well filled and adequate for all legitimate needs.

CHIEF interest now lies in the probable action of the New York federal reserve bank. Its rate doubtless will be increased eventually. Loans of leading member banks of the entire federal reserve system are the highest ever recorded. They have gained $1,200,000,000 in a year, with loans on securities accounting for more than $900,000,000 of the increase. This has made possible the great bull stock advance.

The Barometer of Business

Industrial Indicators

	Oct., 1925	One month Ago	One year Ago	1913
Pig iron output (Daily average, tons)	97,351	90,862	79,401	83,000
Blast furnace index 60 per cent = normal	54.1	51.6	44.2	62.8
Unfilled orders (tons)	4,109,183	3,717,297	3,525,270	4,513,000
Ingot output (Daily average, tons)	144,183	134,342	115,756	
Dodge Bldg., awards in 37 states (sq. ft.)	69,305,000	72,286,000	47,898,800	31,250,000
Automobile output	*454,000	320,000	285,000	
Coal output, tons	53,419,000	46,780,000	46,356,000	39,869,000
Business failures; number	1,581	1,465	1,696	1,336
Business failures; liabilities	$29,543,870	$30,687,319	$36,098,804	22,732,000
Cement production, bbls.	15,992,000	15,939,000	14,820,000	7,704,000
Cotton consumption, bales	543,679	463,266	534,283	438,218
Car loadings (weekly average)	1,107,000	1,081,800	1,096,600	

*Estimated.

Foreign Trade

Exports	$492,000,000	$422,000,000	$527,171,781	$194,000,000
Imports	$375,000,000	$349,000,000	$310,751,608	$149,900,000
Gold exports	$ 28,039,190	$ 6,784,000	$ 4,125,268	$ 5,234,000
Gold imports	$ 50,740,649	$ 4,097,771	$ 19,701,640	$ 5,900,000

Foreign Exchange

	Normal	Nov. 16	One Month ago	One year ago
Sterling	$4.86	$4.84⅝	$4.83	$4.63
Francs	19.3c	4.01c	4.41c	5.28c
Lira	19.3c	4.00c	4.01c	4.38c
Marks	23.8c	23.8c	23.8c	

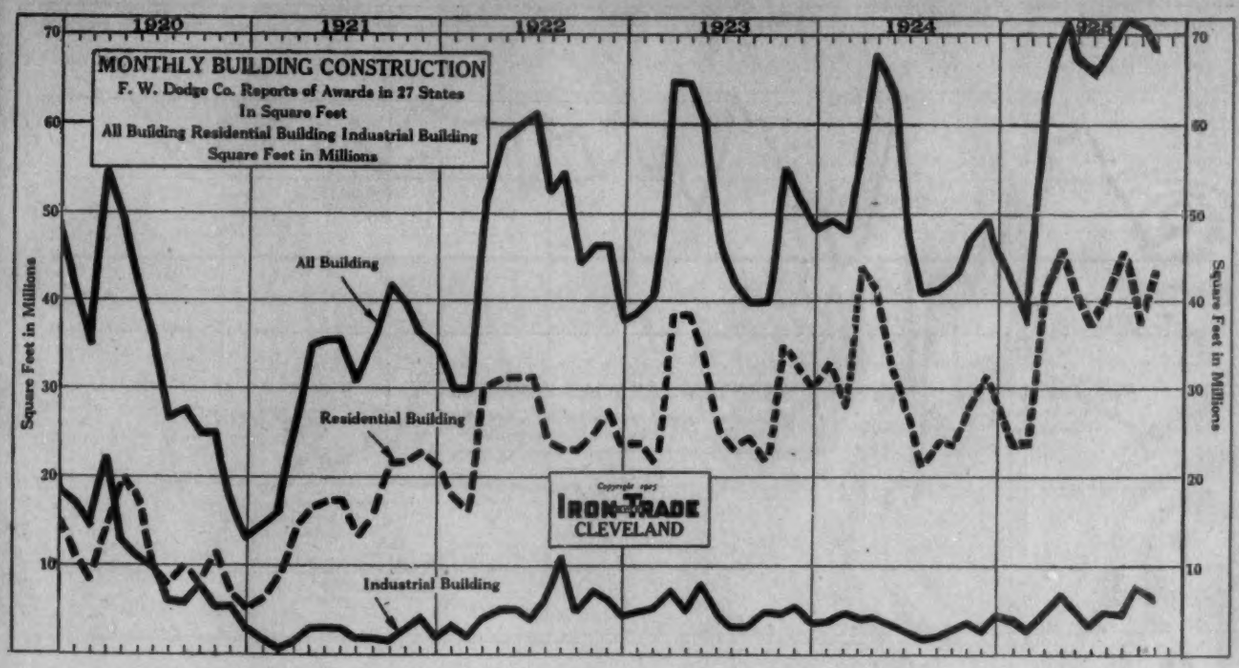
Financial Indicators

	Sept. 1925	One month ago	One year ago	1923
25 Industrial stocks	$176.07	$171.02	$125.03	$58.19
25 Rail stocks	$88.62	$85.19	$76.62	$82.90
40 Bonds	$84.82	$84.10	$81.79	$93.00
Bank Clearings (000 omitted)	$47,154,324	$40,667,296	$40,617,911	$13,895,000
Commercial paper rate (N. Y., per cent)	4.35	4.25	3.28	5.60
*Commercial loans (000 omitted)	$8,471,084	$8,480,000	$8,184,713	
Federal reserve ratio per cent	72	71.7	76.8	
Railroad earnings, Sept.	$134,500,000	$124,804,665	$116,000,000	$59,301,000
Stock sales, N. Y. stock exchange	54,001,704	37,100,231	18,332,992	6,924,000
Bond sales, par value	$260,533,700	$238,330,550	$292,579,810	$41,499,000

*Leading member banks Federal Reserve System.

Commodity Prices

	Nov. 1	One month ago	One year ago	1913
Bureau of labor statistics	157.6	159.7	151.0	100
Bradstreet's index	154.9	158.1	144.4	100
Economist's (British)	159.2	162.8	178.4	100
Wheat, cash (bushel)	1.63c	$1.60	$1.52	92c
Corn, cash (bushel)	87c	75c	$1.16	51c
Petroleum, crude (Bbl.)	$3.15	$3.15	$2.75	$2.80

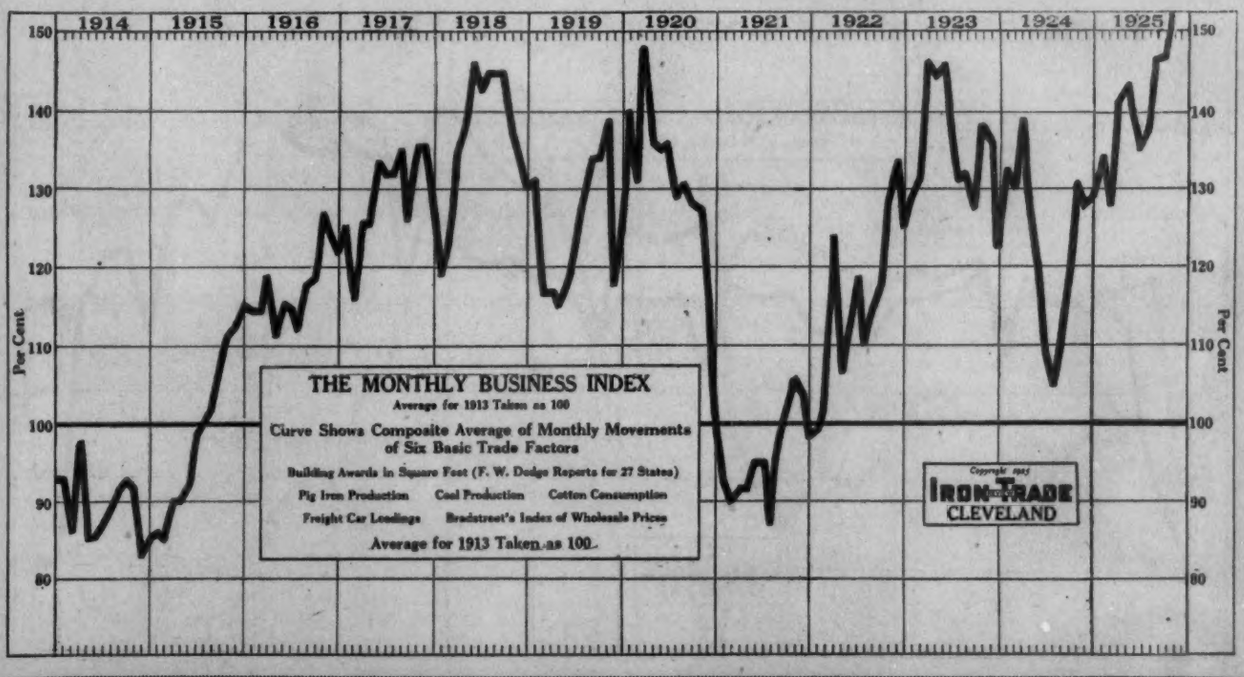


Building Construction

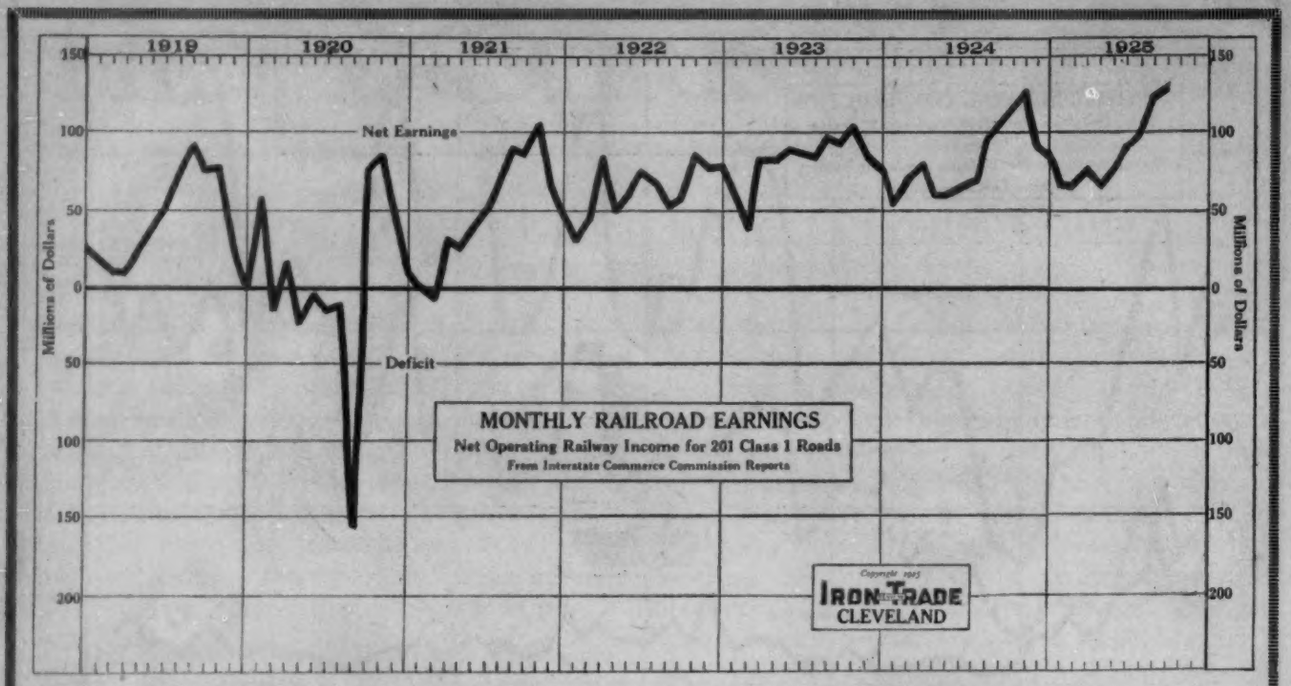
A FAINT hint that the building boom may be faltering is seen in the record of construction awards for October. As reported by the F. W. Dodge Corp. awards in 27 northeastern states totaled 69,305,000 square feet, a decline of more than 4 per cent from the September total. The figure was 46 per cent greater than that for October, 1924, and the biggest for any October on record. Residential awards gained 56 per cent over the total of one year ago and industrial building gained 97 per cent.

Business Index

SEASONAL stimulation has combined with basic forces to bring about an extraordinary volume of business this fall. The rise of activities is reflected by Iron Trade Review's Monthly Business Index for October. The Index stands at 152, the highest point ever touched. All the factors comprising the index increased in October except building for which there was a small decline. Freight traffic for the month was at unprecedented levels. Coal and pig iron outputs also made increases.



The Business Trend

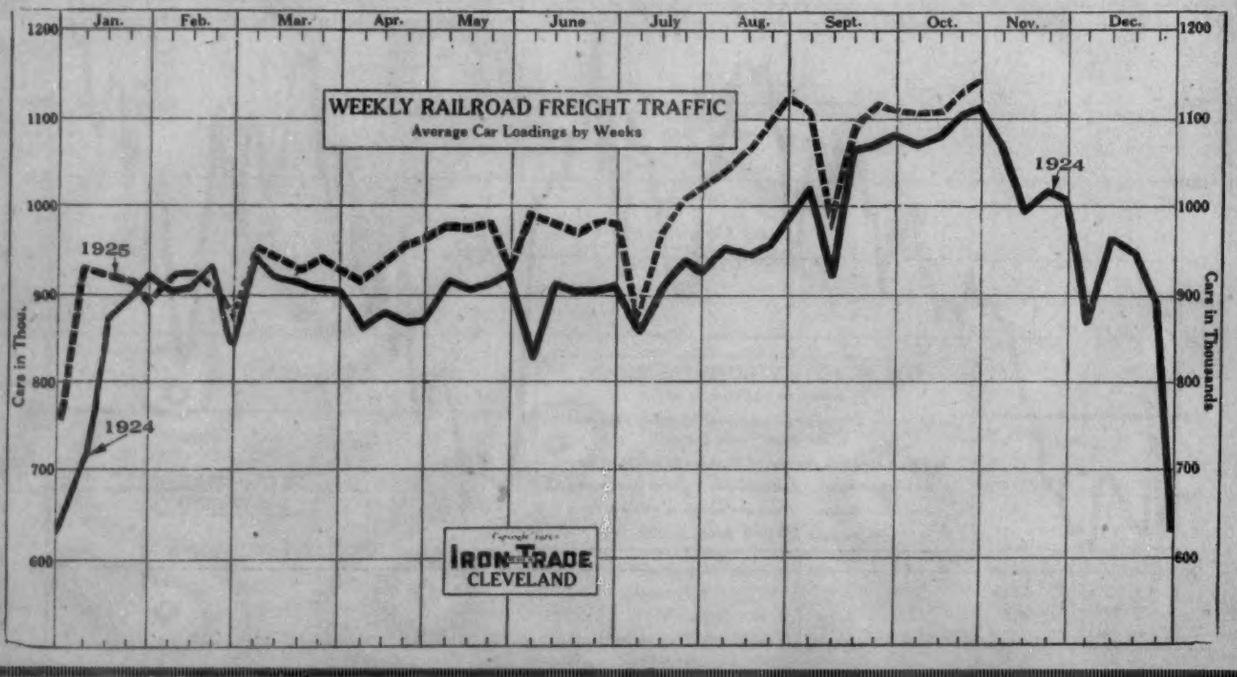


Railroad Earnings

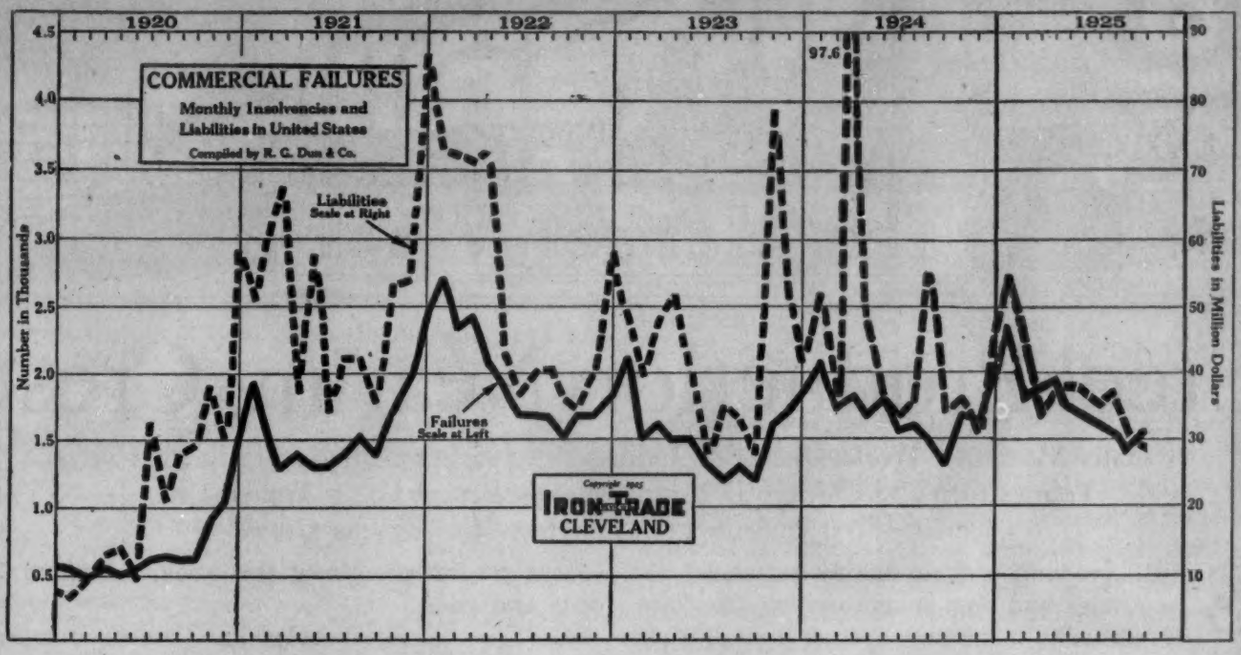
HUGE traffic records of the railroads this year are being reflected in volumes of earnings that are surpassing all previous marks. In September net earnings of Class 1 roads totaled $134,500,000, compared with $124,800,000 in August and $116,760,000 in September, 1924. Earnings in dollars this year are passing the previous peak year of 1916. In rate of return on estimated property valuation, however, the net was only 5 per cent in the first nine months of 1925.

Freight Traffic

MOVEMENTS of revenue freight this year have made new high marks for all time. In the week ended Oct. 24 aggregate freight loadings totaled 1,121,000 cars. This was the largest weekly figure on record with the single exception of the 1,124,000 cars reported for the week ended Aug. 29. During 16 weeks of this year car loadings have exceeded a weekly total of 1,000,000. Despite the big movement there is little freight congestion except in isolated instances.



The Business Trend

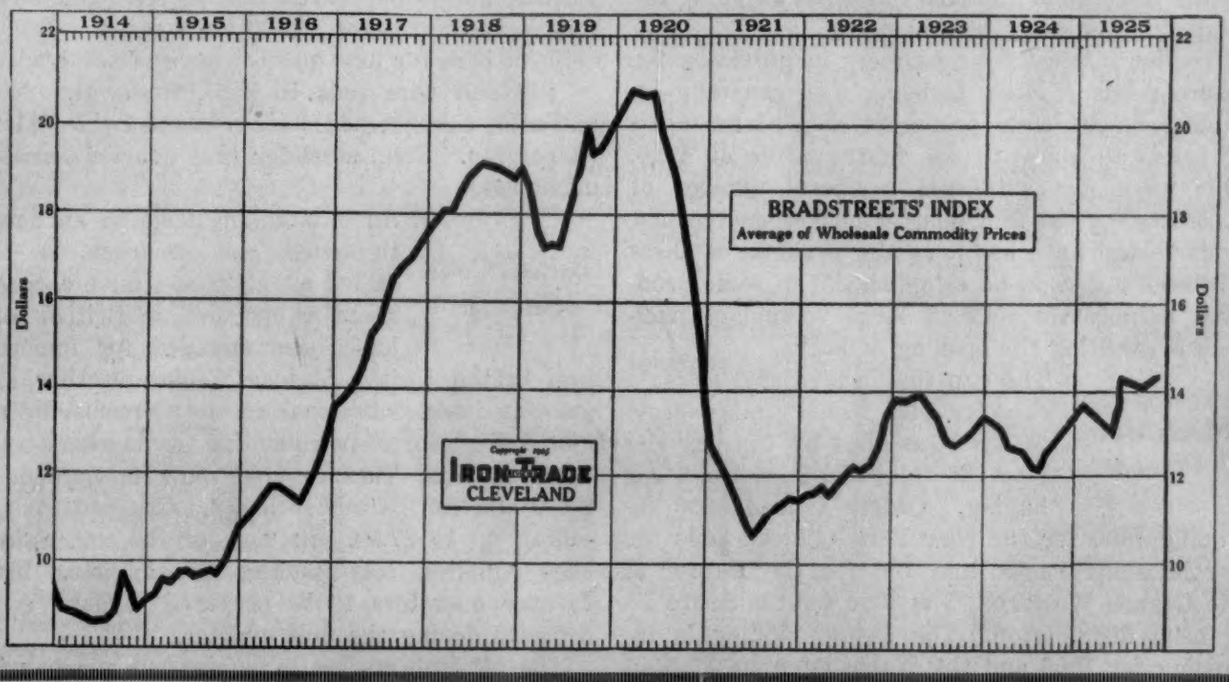


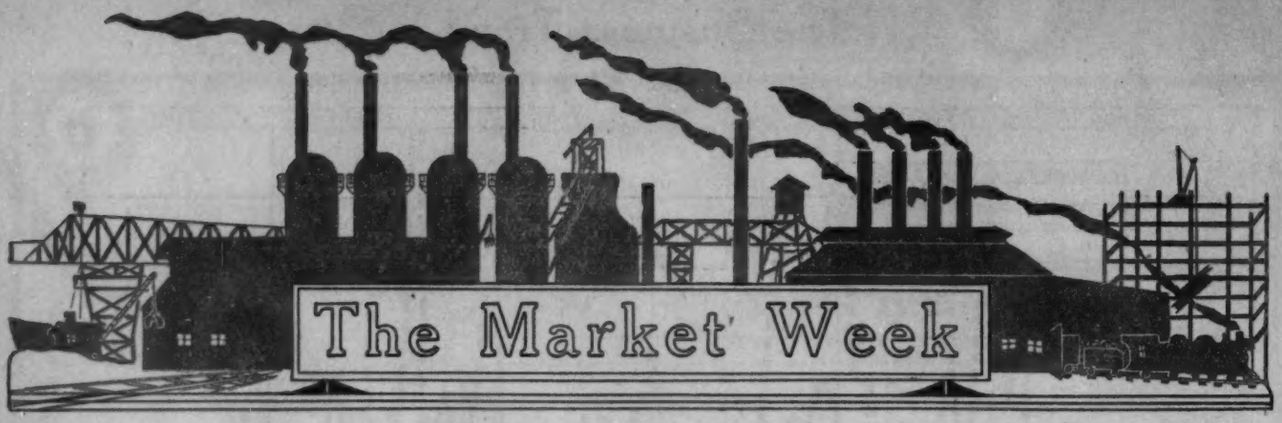
Business Failures

IN OCTOBER the number of failures reported by R. G. Dun & Co. was 1581 against 1465 in September. Compared with the total number of failures of 1696 in October, 1924, a sharp decline is indicated. The volume of liabilities in October showed a decrease both compared with September and with October, 1924. The total for the month wah $29,500,000 against $36,098,000 in October one year before. The approach of the end of the year always brings a preceptible gain in the number of defaults.

Bradstreets Prices

CROSS currents are manifest in commodity prices. Recently the underlying trend of industrial products has been upward, while certain farm products, such as livestock and cotton have displayed weakness. However, advances have exceeded declines and the index number compiled by Bradstreet's as of Nov. 1 shows a gain of 1.2 per cent for a month. The number is 7.5 per cent higher than the lowest point of the year. It is also the highest level reported since Nov. 1, 1920.





Steel Production Nearing Crest

Virtually Maximum Works Operation Indicated by 85 Per Cent Record in Pittsburgh, Youngstown and Chicago Districts—Heavy Recent Order Tonnage Reflected—First Quarter Prices Higher—Car Buying Grows

STEEL production again has forged ahead the past week and now is approaching the point of virtually maximum operation in leading districts. At Pittsburgh, steelworks activities have gone from 80 to over 85 per cent of ingot capacity and are averaging 85 per cent in both Chicago and Youngstown territories. It is indicated from these figures that November will exceed any November in history for which a definite record is available and that the industry at large is making steel at the annual rate of better than 47,000,000 tons.

This speeded up output is expressive of the heavy bookings entered by the mills in October which still is keeping up. So far in November some companies have been able to exceed even their October receipts. Generally, incoming tonnage is holding ahead of shipments despite the steady increase of the latter and the swing of the market is distinctly favorable.

Greater interest by consumers in providing for future needs of steel is being met generally by announcements from producers of a higher basis of prices to apply to the first quarter of 1926. This week has witnessed a liberal number of contracts for the first quarter booked on the new basis though in other lines the firmness of these advances yet is to be established. In some products, notably tin plate, a large volume of business is awaiting the opening of books.

Many Cars Placed

The gap that has existed in plate capacity with western mills largely has been filled by the heaviest week of the year in railroad car buying. Orders totaled 8200 including 4500 for the New York Central, 3000 for the Missouri Pacific and 700 for the Denver & Rio Grande Western. The 3000 for the Santa Fe is near distribution. The Lehigh Valley is inquiring for 1000 and the Wabash for 2000. Rail orders are less prominent this week, consisting of odds and ends.

More Price Advances

Sheet sales in October totaling 403,491 tons or 127.3 per cent of capacity, were the largest since reported collectively by independent mills, with the single exception of November 1924. Shipments were up 70,000 tons but unfilled orders increased approximately 100,000 tons. These figures explain the strengthened position of the sheet market where various independent mills this week have advanced prices again $2 per ton applying to first quarter contracts. As the automobile industry continues to run unusually well for this season, large inquiries for sheets for first quarter are being put out including one for 15,000 tons and another for 6,000 tons from the Detroit district. Present automobile production in Michigan territory is at the rate of 16,000 units daily.

Sheet bars for first quarter have been advanced to $36 and wire rods to $46 Pittsburgh. New extras in cold-finished steel raises the price $1 to $3 per ton. Strip steel for first quarter remains unchanged.

British Coke Engaged

An outstanding item in an again tightened coke market is the cabled advice that twelve cargoes, about 50,000 tons, of British coke have been engaged for importation in the United States. Colder weather and growing labor deflections in the Connellsville region have been responsible for the market's turn upward. Spot furnace coke now is quoted at $6.50 and for December at $8. Crushed coke is selling up to $7.50. In view of the uncertainty over supplies, coke makers are advising blast furnace operators to be prepared to bank some capacity during the first quarter.

The pig iron market is quieter but strong with

shipments continuing large. Spot iron has been sold at $23.50 Chicago and at $23.50 to $25 at other lake points to the East. Eastern basic is $1 higher. A Newport, Ky. steelmaker is in the market for 25,000 tons of basic.

Building steel awards show some signs of subsiding though the total this week reached 25,189 tons. Many projects still are pending. New York promises 200,000 tons of additional subway work next year.

IRON TRADE REVIEW composite of fourteen leading iron and steel products moved ahead another step this week, rising to $38.84 from $38.76. This is the highest point since the end of April.

Prices, Present and Past

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Nov. 18, 1925	Oct. 1925	Aug. 1925	Nov. 1924
PIG IRON				
Bessemer, valley, del., Pittsburgh	$22.76	21.46	20.76	22.11
Basic, valley	20.00	18.70	18.00	19.25
Basic, eastern del., eastern Pa.	23.25	20.50	20.50	21.46
*No. 2 foundry, del., Pittsburgh	22.26	20.96	20.26	21.36
No. 2 foundry, Chicago	23.00	21.60	20.50	21.00
*Southern, No. 2, Birmingham	21.00	19.25	18.00	17.90
*Southern Ohio, No. 2 Ironton	21.00	19.65	19.40	20.90
**No. 2X, Virginia furnace	28.00	28.00	23.00	24.50
**No. 2X, eastern, del. Phila.	23.76	22.61	21.76	22.98
Malleable, valley	20.50	19.20	18.50	19.75
Malleable, Chicago	23.00	21.60	20.50	21.00
Lake Superior charcoal, Chicago	29.04	29.04	29.04	29.04
Gray forge, val., del. Pittsburgh	21.76	20.46	19.76	20.76
Ferromanganese, del., Pittsburgh	119.79	119.79	119.79	107.29
*1.75 to 2.25 silicon. **2.25 to 2.75 silicon.				
COKE				
Connellsville furnace, ovens	5.50	5.65	3.10	3.00
Connellsville foundry, ovens	7.00	5.95	3.80	4.05
SEMIFINISHED MATERIAL				
Sheet bars, open hearth, Youngstown	35.00	33.50	33.25	37.00
Sheet bars, open-hearth, Pittsburgh	35.00	35.00	35.00	37.00
Billets, open-hearth, Pittsburgh	35.00	35.00	35.00	35.50
Wire rods, Pittsburgh	45.00	45.00	45.00	45.50
FINISHED MATERIAL				
Steel bars, Pittsburgh	2.00	2.00	1.95	2.05
Steel bars, Chicago	2.10	2.10	2.10	2.05
Steel bars, Philadelphia	2.32	2.27	2.27	2.295
Iron bars, Philadelphia	2.22	2.12	2.17	2.345
Iron bars, Chicago, mill	2.00	1.90	1.90	2.10
Beams, Pittsburgh	2.00	1.90	1.95	2.00
Beams, Philadelphia	2.17	2.17	2.17	2.12
Beams, Chicago	2.10	2.10	2.10	2.15
Tank plates, Pittsburgh	1.85	1.80	1.85	1.85
Tank plates, Philadelphia	1.92	2.02	2.12	2.02
Tank plates, Chicago	2.10	2.10	2.10	2.15
Sheets, black, No. 28, Pittsburgh	3.25	3.10	3.15	3.45
Sheets, blue anl., No. 10, Pittsburgh	2.40	2.25	2.30	2.60
Sheets, galvanized, No. 28, Pittsburgh	4.50	4.25	4.20	4.60
Sheets, black, No. 28, Chicago	3.40	3.35	3.35	3.65
Sheets, blue anl. No. 10, Chicago	2.55	2.45	2.45	2.85
Sheets, galvanized, No. 28, Chicago	4.65	4.45	4.40	4.75
Wire nails, Pittsburgh	2.65	2.65	2.65	2.75
Wire nails, Chicago	2.70	2.70	2.70	2.95
Tin plate per base box, Pittsburgh	$5.50	$5.50	$5.50	$5.50
OLD MATERIAL				
Heavy melting steel, Pittsburgh	19.50	18.40	19.25	19.85
Heavy melting steel, eastern Pa.	18.00	17.00	16.50	18.05
Heavy melting steel, Chicago	16.50	16.25	16.05	17.05
No. 1 wrought, eastern Pa.	18.25	18.25	18.25	18.95
No. 1 wrought, Chicago	17.75	16.30	17.45	17.10
Rails for rolling, Chicago	19.50	18.55	19.10	18.20

Composite Market Average

The Fourteen Leading Iron and Steel Products Included are Pig Iron, Billets, Slabs, Sheet Bars, Wire Rods, Steel Bars, Plates, Structural Shapes, Black, Galvanized and Blue Annealed Sheets, Tin Plate, Wire Nails and Black Pipe

This week (Nov. 18, 1925)	$38.84
Last week (Nov. 11, 1925)	38.76
One month ago (October, 1925)	37.61
Three months ago (August, 1925)	37.39
One year ago (November, 1924)	39.00
Ten years ago (November, 1915)	28.64
Twelve years ago (November, 1913)	24.02

Late News Flashes

Quarter Strip Prices Announced

Pittsburgh, Nov. 17.—Strip steel makers have opened their books for the first quarter at the present figures. These are hot rolled strip, 2.30c, Pittsburgh; hoops and bands, 6 inches and over, 2.50c, Pittsburgh and cold-rolled strip, 3.90c, Pittsburgh. Tonnages are being allocated to regular customers on the basis of the specification rate for the present quarter.

Structural Bookings Highest Since June

Washington, Nov. 17.—Total structural bookings reported to the department of commerce by 168 fabricators amounted to 215,416 tons in October, the largest since June. October shipments reported at 263,900 tons were 91 per cent of capacity and the highest such figure since the department started compiling these figures in January, 1924.

Pittsburgh Jumps to 85 Per Cent

Pittsburgh, Nov. 17.—Steelmaking operations in the Pittsburgh area show considerable increase, the Carnegie Steel Co. alone increasing about 9 per cent or from 74 to 83 per cent in the week. Independents are averaging between 85 and 90 per cent, and the general average for the territory is slightly above 85 per cent against 80 per cent or lower, previously. The Carnegie Steel Co. keeps 34 out of 54 blast furnaces active.

Plan Conference on Threading Tools

Washington, Nov. 17.—Invitations were issued today by the simplified practice division of the department of commerce for a conference to be held Dec. 4 to consider simplifying sizes of automatic screw threading tools. Producers are to furnish a list of about 12,000 special sizes and combinations not generally manufactured for stock. A manufacturers' committee with the help of the national screw thread commission has drafted a tentative reduction list.

Institute Checks Up Capacity

New York, Nov. 17.—Questionnaires have been sent out by the American Iron and Steel institute to all makers of steel ingots, pig iron and steel castings with a view to obtaining new figures denoting the country's capacity in those products. The survey is the outgrowth of a belief in certain quarters in the steel industry that the present capacity figures are far above the actual capacity. The committee having charge is headed by John A. Topping, chairman of the Republic Iron & Steel Co.

Current Rolled Steel Prices

PRICES, CENTS PER POUND, UNLESS OTHERWISE STATED

Semifinished Material

Prices per gross ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open hearth	$35.00
Pittsburgh, bessemer	35.00
Youngstown	35.00
Philadelphia	39.30 to 41.30
Chicago	35.00 to 36.00
Forging, Pittsburgh	40.00
Forging, Philadelphia	44.30 to 45.30

SHEET BARS

Pittsburgh	$35.00 to 36.00
Youngstown	35.00 to 36.00

SLABS

Pittsburgh	$35.00
Youngstown	35.00

WIRE RODS

⅛-inch and finer

Pittsburgh	$46.00
Cleveland	46.00
Chicago	47.00

Standard extras, $2.50 per ton over ⅜-inch; $5 for screw stock; $15 for acid wire rods. Carbon extras, $3 for 0.20 to 0.40; $5 for 0.41 to 0.55; $7.50 for 0.56 to 0.75; $10 over 0.75.

SKELP

Grooved skelp, Pittsburgh	1.90c
Universal skelp, Pittsburgh	1.90c
Sheared skelp, Pittsburgh	1.90c

Structural Shapes

Pittsburgh	1.90c to 2.00c
Philadelphia	2.02c to 2.42c
New York	2.14c to 2.34c
Chicago	2.10c
Cleveland	2.09c to 2.19c
Birmingham	2.15c to 2.25c

Steel Plates

Pittsburgh	1.90c to 2.00c
Philadelphia	1.92c to 2.02c
New York	1.94c to 2.04c
Chicago	2.10c
Cleveland	1.99c to 2.09c
Birmingham	2.00c to 2.05c

Iron and Steel Bars

Pittsburgh, soft steel	2.00c to 2.10c
Pittsburgh, cold finishing	2.15c to 2.25c
Pittsburgh, forging quality	2.15c to 2.25c
Philadelphia, soft steel	2.32c to 2.42c
New York, soft steel	2.44c to 2.54c
Chicago, soft steel	2.10c
Cleveland, soft steel	2.19c
Birmingham, soft steel	2.15c to 2.25c
San Francisco, soft steel	2.60c
Pittsburgh, refined iron	3.00c to 4.50c
Pittsburgh, reinforcing billet	2.00c
Youngstown, reinf. billet, base	1.90c to 2.00c
Chicago, rail steel	2.00c to 2.10c
Mill, rail steel	1.80c to 1.90c
Philadelphia, common iron	2.32c
New York, common iron	2.24c
Chicago, common iron	2.00c

Hoops, Bands, Strips

Hoops, Pittsburgh, 6 inches and under	2.50c
Bands, Pittsburgh, 6 inches and under	2.50c
Bands, Pittsburgh over 6 in.	2.30c
Hot rolled strip steel, Pittsburgh stamping quality	2.30c to 2.50c
Hot rolled strip steel, Chicago	2.50c to 2.60c
Bands, Chicago, under 6 inches	2.60c
Bands, Chicago, 6 in. and over	2.50c
Cold rolled strip steel, hard coils, 1½ inches and wider by 0.100-inch and heavier, base, Pittsburgh, Cleveland	3.90c
Worcester, Mass., Chicago	4.05c to 4.15c

Cold Finished Steel

Cold finished steel bars, drawn, or rolled Pittsburgh, Chicago carloads	2.50c
Less carload	2.75c
Steel shafting turned and polished Pittsburgh, Chicago	2.60c

Screw stock base Cleveland $1 higher; and Worcester $3 higher than Pittsburgh and Chicago.

Hot Rolled Alloy Steel

Pittsburgh or Chicago

S. A. E. Series—	
2300 (3½ per cent nickel)	4.60c to 4.75c
3100 (Nickel chromium)	3.60c to 3.65c
6100 (Chrome vanadium)	4.40c to 4.50c
6100 (Chrome vanad. spring)	3.85c to 4.00c
9250 (Silico-mang. spring)	3.30c to 3.40c

Billets—4 x 4 to 10 x 10, gross ton at net ton bar prices; under 4 x 4 to 2½ x 2½-inch $5 higher. Chicago base $2 higher.

Rails, Track Material

Standard bessemer rails, mill	$43.00
Standard open- h'th rails, mill	43.00
Relaying rails, St. Louis	24.00 to 31.00
Relaying rails, Pittsburgh	27.00 to 30.00
Light rails, 25 to 45 mill g.t.	36.00 to 38.00
Angle bars, Chicago base	2.75c
Spikes, railroad, Pittsburgh	2.85c
Spikes, small railroad, 7-16-inch and smaller, Pitts.	2.90c to 3.00c
Spikes, boat and barge, Pitts.	3.25c
Spikes, railroad, Chicago	2.90c to 3.00c
Track bolts, Pitts. standard	3.90c to 4.15c
Track bolts, Chicago	3.90c to 4.15c
Tie plates, Pittsburgh	2.35c
Tie plates, Chicago	2.35c

Wire Products

To Jobbers in Carloads

F.o.b. Cleveland and Pittsburgh	base
Wire nails	2.65c
Galv'd nails smaller than 1-inch	4.90c
Galv'd nails, 1-inch and over	4.65c
Plain wire	2.50c
Annealed wire	2.65c
Galvanized wire No. 9 gage	3.10c
Barbed wire, painted	3.10c
Barbed wire, galvanized	3.35c
Polished staples	3.10c
Galvanized staples	3.35c
Coated nails, count keg	1.85c
Woven wire fencing (retailers) 12½ gage, 26-in. high 7-in. bars and 12-in. stays, per 100 rods, f.o.b. Pitts.	$20.03

Joliet, DeKalb and Waukegan, Ill., and Anderson, Ind., prices $1 per ton over Cleveland-Pittsburgh base on products made there; Chicago $1 higher; Duluth $2 higher and Worcester, Mass., and Fairfield, Ala., $3 higher.

Sheets

SHEET MILL BLACK

No. 28, Pittsburgh base	3.25c to 3.35c
No. 28, Philadelphia, delivered	3.57c to 3.67c
No. 28, Gary, Indiana Harbor	3.35c
No. 28, Chicago, delivered	3.40c

TIN MILL, BLACK

No. 28, Pittsburgh	3.25c to 3.35c
No. 28, Gary base	3.35c to 3.40c

GALVANIZED

No. 28, Pittsburgh base	4.50c to 4.60c
No. 28, Philadelphia, delivered	4.82c to 4.92c
No. 28, Gary, Indiana Harbor	4.60c
No. 28, Chicago, delivered	4.65c

BLUE ANNEALED

No. 10, Pittsburgh base	2.40c to 2.50c
No. 10, Philadelphia, delivered	2.72c to 2.82c
No. 10, Gary, Indiana Harbor	2.50c
No. 10, Chicago, delivered	2.55c

AUTOMOBILE SHEETS

No. 22, Pittsburgh base	4.40c to 4.50c

Tin Plate

Prices per 100-pound box, Pittsburgh

Tin plate, coke base	$5.50

Gary, Ind. base 10 cents higher.

Iron and Steel Pipe

Base Discounts Pittsburgh and Lorain, O. to Jobbers in Carloads

	Black	Galv.
1 to 3-inch butt steel	62	50½
1 to 1½-inch, butt iron	30	15

Indiana Harbor, Ind., and Evanston, Ill., 2 points less and $4 per ton higher. Chicago delivered 2½ points less and $5 per ton higher.

Boiler Tubes

Less Carload Discounts—Carloads 4 Points Additional—F.o.b. Pittsburgh Mills

Steel 3¼ to 3¾-inch	38½
Charcoal iron, 2¼ to 4½-inch	5
Seamless hot rolled, 3¼ to 8½-inch	45 off

Chain, Piling, Cut Nails

Chain, 1-in. proof coil, Pitts.	5.00c
Sheet piling base, Pittsburgh	2.25c to 2.30c
Cut nails, c. l., f.o.b. mills	2.80c

Cast Iron Water Pipe

Prices per net ton

Class B Pipe

Four-inch, Chicago	$54.20
Six-inch and over, Chicago	50.20
Four-inch, Birmingham	46.00 to 47.00
Six-inch and over, Birmingham	42.00 to 43.00
Four-inch, New York	56.50 to 57.60
Six-inch and over, New York	51.50 to 52.60

Standard fittings, Birmingham base $110.00, 6 to 24-inch, base; over 24-inch, plus $20; 4-inch, plus $20; 3-inch, plus $20; gas pipe fittings, $5 higher.

Class A pipe is $5 higher than Class B

Nuts and Bolts

F.o.b. basing points, Pittsburgh, Cleveland, Birmingham and Chicago.

Hot pressed square tapped or blank	$4.00 off list
Hot pressed hexagon tapped or blank	$4.40 off list
Cold punched square or hexagon blank	$4.10 off list
Cold punched square or hexagon tapped or blank	$4.10 off list
Cold punched U. S. S. semifinished hexagon nuts ⅝-inch and larger	75, 10 and 5 off
Cold punched U. S. S. semifinished hexagon nuts 9/16-inch and smaller	80, 10 and 5 off
Cold finished S. A. E. semifinished ⅝-inch and larger	75, 10, 10 and 5 off
Cold finished S. A. E. semifinished 9/16-inch and smaller	80, 10, 10 and 5 off

CARRIAGE BOLTS

(⅜ x 6-inch, smaller and shorter)

Rolled thread	50, 10 and 10 off
Cut thread (all sizes)	50 and 10 off
Eagle carriage bolts (Eagle list)	65 and 10 off

MACHINE BOLTS

(⅜ x 4-inch, hot pressed nuts)

Rolled thread	60 and 10 off
Cut thread (all sizes)	50, 10 and 10 off

(All sizes cold punched nuts)

Cut thread	45, 10 and 5 off
Lag screws	60, 10 and 10 off
Plow bolts Nos. 3 and 7 heads	50 and 10 off
All other standard heads	50 and 10 off plus 20 per cent
*Flat and round head stove bolts	80, 10 and 5 off
Tap bolts	80 off
Bolt ends with hot pressed nuts	50, 10 and 10 off
Bolt ends with cold punched nuts	45, 10 and 5 off
Blank bolts	50, 10 and 10 off
Rough stud bolts with nuts (250 pieces or more of a size)	40 and 10 off

*Stove bolts 80, 10 and 5 off plus 2½ in bulk.

Tire bolts	60 and 5 off

SEMIFINISHED CASTELLATED AND SLOTTED NUTS

Per 1000, f.o.b. producer's plant, freight allowed

	S.A.E. Castellated	U.S.S. Slotted
¼	$ 4.40	$ 4.40
5/16	5.15	5.15
⅜	6.20	6.60
7/16	7.90	9.00
½	10.10	10.50
9/16	13.80	14.20
⅝	17.00	17.30
¾	23.50	24.00
⅞	36.00	36.00
1	55.50	58.00
1⅛	89.00	99.00
1¼	126.00	131.00
1⅜	183.50	183.50
1½	210.00	210.00

Larger sizes—Prices on application

HEXAGON CAP SCREWS

Milled	80 and 10 off
Upset	80, 10 and 10 off

SQUARE HEAD SET SCREWS

Milled	80 and 5 off
Upset	80, 10 and 5 off

Rivets

Structural rivets, carloads, Pittsburgh and Cleveland	2.60c
Structural rivets, carloads, Chicago	2.75c
**Rivets, 7/16-in. and smaller Pittsburgh, Cleveland	70 and 10 off
**Rivets, 7/16 in. and smaller Chicago	70, 10 and 5 off

**Some makers quoting 70 off with freight allowed on 300 pounds or more.

Washers

Wrought c.l., Chi. dist.	$6.30 to 6.40 off
Wrought c.l., Pitts dist	6.25 off
Lock Washers, f.o.b. factory	85 off

Pig Iron

Volume of Sales Is Smaller—Upward Movement of Prices Less Pronounced—Large Inquiry for Basic in Market

PIG iron purchasing in general is less brisk than in recent weeks, although good size sales continue to be closed, particularly in Michigan, Indiana and Ohio. The week's sales by interests represented at Cleveland total 25,000 tons. The largest transactions, closed in the middle of last week, were orders from the Westinghouse Electric & Mfg. Co. for 4200 tons for Cleveland, some of which was placed at $20.50, base valley; and 3500 tons for Trafford City, Pa., all for first quarter. A sale of 1000 tons of foundry iron to an Indianapolis foundry at $21, Ironton, clarifies the market situation in that district. Lake furnace prices have shown a stronger tendency, and the top figure so far is reported to be $25, base, furnace.

PITTSBURGH, Nov. 17.—The pig iron market is in the midst of a comparative lull after the recent spurt of activity. The Westinghouse Electric & Mfg. Co.'s orders were the only large activities of the past week. This company placed 4500 tons for Cleveland and 3200 tons for Trafford City, Pa. This distribution included 500 tons of foundry iron for Cleveland, placed with a valley merchant furnace at $20.50, valley base. Some producers now are quoting $21, valley, as mininum for first quarter. Other sales in amounts below 500 tons each were fairly numerous, for shipment to more distant points, ordinarily reached by other furnaces now out of the market. This condition also is true of malleable. Orders usually range from 50 to 200 tons at a time, at $20.50, valley, as the spot price. One sale of 1500 tons of basic is noted at $20, valley, by a merchant producer for distant shipment. The freight rate is about $3, indicating a dearth of iron in certain other sections. The Allegheny Steel Co. is understood to have closed for 3000 tons of bessemer with a middle interest that is liquidating long-held stock, at a price below the quoted market of $21, valley. Small sales by producers have been made at that figure. Only a few small inquiries are coming out to work on this week.

Boston, Nov. 17.—Buying of pig iron for first quarter delivery has expanded during the past week. Two eastern Pennsylvania furnaces have entered the market at prices ranging from $23 to $23.50, furnace, or $26.65 to $27.15 delivered for No. 2X (2.25 to 2.75 silicon). A fairly heavy tonnage of small orders has been entered. Buffalo furnaces for the most part are reluctant to quote beyond the first of the year, but some tonnage is being placed for that delivery at $22.50 furnace. Nearly 5000 tons of foreign iron has reached the port of Boston recently. Continental iron is offered at $23 a ton f.o.b. cars Boston.

New York, Nov. 17.—The pig iron market here is quiet. Total sales in the past week were not over 5000 tons. Inquiries aggregate about 4000 tons. One Buffalo maker has advanced to $22 for first quarter, making the market $21 to $22, base. Eastern Pennsylvania iron is $22.50 to $23, base furnace. Foreign offerings are less plentiful. Prices still are $21 to $23, duty paid tidewater, depending on quality.

Philadelphia, Nov. 17.—Pig iron sales in the past week are estimated at 10,000 to 15,000 tons. Eastern furnaces appear firm at $23, base, as minimum, with some sales for first quarter at $23.50, base. No. 2X is bringing $23.50 and $24. The Glasgow Iron Co. wants a large tonnage of gray forge iron. The Pennsylvania railroad bought at least 3000 tons of foundry and basic. Foreign iron continues to bring $21 to $23, duty paid, tidewater.

Buffalo, Nov. 17.—Inquiry for pig iron here is estimated at 5000 to 7500 tons. A western consumer is in the market for 5000 tons. Prices are steady. Buffalo sellers quote $21 to $22, base, on iron for prompt and first quarter shipment. One melter reports being booked close to first quarter capacity but continues to offer limited tonnage at $21, base. Others quote for first quarter $21.50 for low silicon iron. The American Radiator Co. bought about 3500 tons of special grades for Buffalo and Titusville last week. Total sales of the week by Buffalo furnaces were around 10,000 tons.

Cleveland, Nov. 17.—While the price situation in the pig iron market has not changed materially during the week, continued strength is indicated by quick closing of sales, payment of full differentials and a large volume of business. A lake stack west of here is obtaining 50 cents more, or $23.50, base, furnace, on a larger proportion of sales, in contrast with $23 a week ago. In a few special instances a lake furnace price of $25 has applied. The absence from the market of the Cleveland furnaces has led to further shipments to melters in this city from outside sources on a base of $20.50 to $21, valley, equivalent to $22.26 to $22.76, delivered. A sale of around 1000 tons to an Indianapolis motorcar builder at $21, Ironton base, is noted. Lake furnaces have lost some business, estimated in all at about 10,000 tons, to southern Ohio interests. These include recent orders placed by Springfield and Mansfield, O., melters. Total sales by furnace companies represented here during the week amounted to about 25,000 tons, mainly for first quarter. Some makers have refused offers of business for the second quarter. The Westinghouse Electric & Mfg. Co. on Wednesday last week placed orders for 4200 tons of foundry iron for first

Pig Iron Prices

Prices per gross ton

Bessemer, valley	$21.00
Bessemer, Pittsburgh	22.76
Basic, valley	20.00
Basic, Pittsburgh	21.76
Basic, Buffalo	20.00 to 20.50
Basic, del., eastern Pa.	23.00 to 23.50
Malleable, valley	20.50 to 21.00
Malleable, Pittsburgh	22.26 to 22.76
Malleable, del., Cleveland	22.26 to 22.76
Malleable, Chicago	23.00
Malleable, Buffalo	21.00 to 21.50
Malleable, del., eastern Pa.	24.25 to 24.75
No. 1X, eastern del., Phila.	24.76 to 25.76
No. 1X, Buffalo	22.00 to 22.50
No. 1 foundry, Chicago	23.50
No. 2 foundry, valley	20.50 to 21.00
No. 2 foundry, Pittsburgh	22.26 to 22.76
No. 2 foundry, Buffalo	21.00 to 21.50
No. 2 foundry, Chicago	23.00
No. 2 foundry, Granite City	23.50
No. 2 foundry, Ironton fur.	21.00
No. 2 foundry, del., Cleveland	22.26 to 22.76
No. 2 foundry, del., Phila.	23.76 to 24.76
No. 2 foundry, N. J., tidewater	24.39 to 24.76
No. 2X, eastern del., Phila.	24.26 to 25.13
No. 2X, east. N. J., tidewater	24.89 to 25.76
No. 2X, eastern del., Boston	26.65 to 27.65
No. 2X, foundry, Buffalo furnace	21.50 to 22.00
No. 2X, Buffalo, del., Boston	26.91 to 27.41
Continental foundry f.o.b. Boston	22.50 to 23.50
India, 2.25 to 2.75 silicon, delivered cars Boston	23.00 to 23.50
No. 2 Alabama, Birmingham	21.00
No. 2, Alabama, Cincinnati	25.05
No. 2 Tenn., Birmingham	20.00
No. 2 Tenn., Cincinnati	24.05
No. 2 southern, Philadelphia	27.01
No. 2 southern, Chicago	27.01
No. 2 southern, Chicago (barge and rail)	25.18
No. 2 southern, Boston (rail and water)	26.91 to 27.91
No. 2 southern, Cleveland	27.01
No. 2 southern, St. Louis	26.17
No. 2X, Virginia furnace	22.50 to 23.50
No. 2X, Virginia, Phila.	27.67 to 28.67
No. 2X, Virginia, Jersey City	28.04 to 29.04
Gray forge, eastern Pa.	23.00 to 23.50
Gray forge, val. del. Pitts.	21.76
Low phos., standard, valley	28.00 to 28.50
Low phos., standard, Phila.	26.79 to 27.79
Low phos., Lebanon, furnace	25.00
*Low phos., English	24.51 to 25.01
Charcoal, Birmingham	30.00 to 32.00
Charcoal, Superior, Chicago	29.04

Silvery iron Jackson county, Ohio furnace, 5 per cent $25.50; 6 per cent $26.50; 7 per cent $27.50; 8 per cent $28.50; 9 per cent $30.00; 10 per cent $32.00; 11 per cent $34.00; 12 per cent $36.00; 13 per cent $38.00; and 14 per cent $40.00.

Bessemer ferrosilicon, Jackson county, Ohio, furnace, 10 per cent $34.00; 11 per cent $36.00; 12 per cent $38.00; 13 per cent $40.00; 14 per cent $42.00; 15 per cent $44.50; 16 per cent $47.00; 17 per cent $49.50.

*Duty paid, delivered Philadelphia consumers.

quarter for its Cleveland plant, with valley interests, and for 3500 tons of foundry iron for its Trafford City, Pa. plant. An inquiry from a Newport, Ky., steelworks for 25,000 tons of basic for first quarter is current.

Cincinnati, Nov. 17.—Withdrawal of the Belfont Steel & Wire Co., Ironton, O., from the market leaves the Marting Iron & Steel Co., in virtual control of the foundry pig iron situation in southern Ohio. Total sales during the week aggregated about 5000 tons. A central Ohio melter is reported to have bought 3000 tons of northern iron for first quarter. Inquiries pending involve close to 12,000 tons. The Saginaw Products Co., Saginaw, Mich., wants 5000 tons of northern foundry and malleable iron and the F. F. Bowser & Co., Fort Wayne, Ind., 800 tons of northern iron. The market on northern iron is firm at $21, Ironton, while southern ranges from $20 to $21, Birmingham, the former quotation applying to Tennessee iron.

Chicago, Nov. 17.—Sales of northern iron continue to reach a good

(*Concluded on Page* 1305)

Ferroalloys

Ferroalloy Buyers Contract For Next Year—Few Prices Changed

New York, Nov. 17.—Special ferroalloys are being bought for next year at unchanged prices. A number of contracts on ferrochrome and ferrosilicon have been closed for all 1926 at 11.50c a pound contained on the former, 4 to 6 per cent carbon, and $85 a ton on the latter, 50 per cent. Ferrovanadium is unchanged, with prices from $3.25 to $4 a pound contained, the latter for special quality. Chrome ore is around $22.50 to $23 a ton and tungsten ore around $11.75 a short ton unit, and future on wolframite ore is strong at $12 a short ton unit but spot is easy.

Probably 1000 tons of ferromanganese was sold the past week, the largest lot of which was 500 tons. Some consumers are inquiring for first half prices but sellers are not quoting beyond the first quarter on which the market is $115, duty paid tidewater.

Pittsburgh, Nov. 17.—Transactions for future supplies of alloys are being arranged in increasing number. Some smaller users of ferromanganese have closed for first quarter. Prices were $115, Baltimore, for domestic and $115, seaboard, base, for English. A few contracts for first half in 50 per cent ferrosilicon have been written at $85, freight allowed, or $2.50 above the 1925 contract figure. The ferrochrome price for next year is about to be announced. Small spiegeleisen sales continue to be made at $34, the price on 19 to 21 per cent material, although contracts for larger tonnages carry correspondingly lower prices, such as $31 and $32.

Chicago, Nov. 17.—A large portion of next year's requirement for 50 per cent ferrosilicon in this district has been covered at $85, freight allowed. Recent sales of ferromanganese include two cars to a Milwaukee user and 100 tons to a Minnesota user at $115, New Orleans. Spiegeleisen is quiet and unchanged at $34, domestic furnace.

Ferroalloy Prices

†Ferromanganese 78 to 82 per cent, tidewater, or furnace first hand and resale	$115.00
Ferromanganese delivered Pittsburgh	119.79
Spiegeleisen 19 to 21 per cent domestic furnace or tidewater	34.00
Ferrosilicon, 50 per cent contract freight allowed	85.00
Ferrotungsten standard, cents per pound contained	1.05 to 1.10
Ferrochrome, 60 to 70 chromium, 6 to 8 carbon, cents per pound contained, delivered	11.50
Ferrovanadium, 30 to 40 per cent per pound estimated, according to analysis	3.25 to 3.90
Ferro-carbon-titanium, car lots, producer's plant, net ton	200.00
Ferrophosphorus, electrolytic, per ton, carload, 17 to 19 per cent, Rockdale, Tenn., basis (18 per cent material	91.00
Ferrophosphorus, electrolytic, per ton, carload, 23 to 25 per cent, f.o.b. Anniston, Ala., (24 per cent material)	122.50

†Duty paid

Coke

Connellsville Prices Resume Upward Movement—Labor Difficulties Spreading

WHILE moderate weather recently served to check for a few days demand for certain grades of by-product and beehive coke, the Connellsville market again is on the upgrade. As high as $8 is being quoted on large tonnages of standard furnace fuel for December. Latest sales of spot tonnages have brought $6.50, and crushed coke has brought as high as $7.50.

Pittsburgh, Nov. 17.—That beehive coke is on the eve of another advance is the general trade opinion. Already $8 is being quoted eastern gas producers on large tonnages of standard furnace coke for December, and $10 in the spot market is expected before the end of the year. After temporary weakness, when coke sold at $5 sales were noted yesterday and today at $5.50 and $6. The latter figure applied to attractive tonnages last night, and now $6.50 is quoted. Crushed coke yesterday sold at $6.75 to $7.50. The usual purchase involved five cars instead of 25 or 50 as recently. Falling temperature is bringing in additional eastern business at a time when production is being hampered throughout the region. Labor deflections spread during the past week, reducing the coal output considerably and having an effect on coke production and deliveries. This is sending some coke producers into the open market to cover obligations, paying around $5.50. Colder weather is fast dissipating surplus tonnages on track in the region and also in the East, except where rejected accumulations because of poor quality still clog the market. Blast furnaces are remaining quiet. Coke producers are advising them to bank a portion of their capacity for first quarter. No anthracite strike settlement is in sight within three months, despite newspaper reports. Mine operators apparently are less inclined to make concessions than they were when at Atlantic City. The foundry melt is increasing, causing a steady flow of specifications against coke contracts. Some additional spot buying is noted, several sales being made at $7 to $7.50. Premium brands are around $8.

Production of coke in the Connellsville region for the week ended Nov. 7 was 199,000 tons, compared with 180,400 tons the preceding week, according to figures published by the *Connellsville Courier*.

New York, Nov. 17.—Despite a decline in the coke market, good brands of the foundry grade are bringing $7.25 to $8, Connellsville, here. By-product foundry coke continues $11.01 to $11.52 delivered at Newark and other northern New Jersey points.

Cincinnati, Nov. 17.—Renewal of contracts for next year has been started by sellers of by-product foundry coke. The Dodge Bros. Motor Car Co. has contracted with the seller of the Indianapolis grade for 18,000 tons for shipment at the rate of 1500 tons a month during 1926. Other sellers, as well as the Ashland By-Product Coke Co., Ashland, Ky., have renewed several important contracts. Lack of sufficient open top cars has hampered the movement of fuel from the Wise county and New River districts.

Coke Prices

Beehive, Ovens	
Prices per net ton	
Connellsville, foundry	$7.00 to 8.00
Connellsville, furnace	5.50 to 6.50
New River foundry	7.50 to 8.00
New River furnace	6.25
Wise county furnace	6.00
Wise county foundry	7.00
Alabama foundry	5.75 to 6.00
Alabama furnace	5.50
By-Product	
Foundry, Newark, N. J.; del.	$11.01 to 11.52
Foundry, Chicago, ovens	10.50
Foundry, New England, del.	13.00
Foundry, St. Louis	10.00
Foundry, Granite City, Ill	10.00
Foundry, Birmingham	5.75 to 6.00

Plates

Market More Active—Delivery Dates Extended—Prices Still Show Wide Spread

DEMAND for oil storage tanks is more active, and several attractive tonnages of plates have been placed for this purpose during the week, with 25,000 tons pending at Chicago. Vessel construction also figures largely in developments, 6000 tons for lake steamers, and 4000 tons for barges at Pittsburgh being figured. Prices continue irregular though working higher.

PLATE PRICES, PAGE 1290

New York, Nov. 17.—Demand for fabricated plate work is active, the outstanding orders involving oil storage tanks. The Chicago Bridge & Iron Co. has booked about 1000 tons on tank work for the Sinclair interests at Charleston, S. C. The Chicago company also has booked 1000 tons of tank work for the Penzoil Refining Co. and 200 tons of export tank work for the Atlantic Refining Co. The Graver Corp., has booked about 1500 tons of storage tank work for the Marlin Refining Co. The Southern Pacific Steamship Co. is in the market for two boats, but has not yet issued an inquiry.

Boston, Nov. 17.—The advance in plates at Pittsburgh from 1.65c to 1.90c was too rapid for the New England market. Plates at present are somewhat firmer.

Philadelphia, Nov. 17.—While good specifications on fourth quarter plate contracts are noted, new demand is quiet. The market is easy at 1.60c to 1.70c, Pittsburgh.

Pittsburgh, Nov. 17.—Along with numerous small orders of plates are a fair number of outstanding tonnages. Some manufacturers of plates such as the Carnegie Steel Co. are well filled with business, and have inaugurated a 2.00c minimum. Others still are quoting 1.90c and late last week the producer who had been quoting 1.85c advanced to 1.90c, so that 1.90c to 2.00c is the quotable market. The largest tonnage pending is 3500 to 4000 tons for 10 barges for the Federal Barge Line. The Carnegie Steel Co. received approximately 80 per cent more plate and shape business in October than in September, the October tonnage including a large western pipe line order.

Cleveland, Nov. 17.—Some good tonnages of plates are coming up for action with demands for smaller lots well spread out and continuing. New lake vessel propositions to come up this week call for about 6000 tons, including 4000 tons for one freighter, 1600 tons for a smaller craft and some repair work. The Standard Oil Co. of New Jersey has renewed an inquiry for 40 large stills requiring 1200 tons, while the 2600 tons for 135 small stills for the Standard Oil Co. of Indiana remain pending. The Louisville & Nashville is inquiring for 825 tons of plates. Plate prices remain irregular. While lots mixed in with bars and shapes have been sold at 2.00c, Pittsburgh or 2.19c, Cleveland, plate tonnage exclusively is going at 1.90c and 1.85c while 1.80c has not disappeared.

Chicago, Nov. 17.—A heavy tonnage of plates will be required for development work in the Casper, Wyo., field by the Standard Oil Co. and in Oklahoma by the Cosden Oil Co. While the tonnages are indefinite, it is estimated that these two jobs plus other current inquiry involve fully 25,000 tons of plates. The 8200 freight cars placed in this district last week will bring 80,000 tons of heavy finished material, mostly plates, to Chicago mills. Chicago district tank builders have booked 3000 tons at New Orleans. Plate bookings still exceed shipments and deliveries will average more than three weeks now. Plates are strong at 2.10c, Chicago.

CONTRACTS PLACED

5000 tons, plates for the William Cramp Shipbuilding & Engine Co., to the Carnegie Steel Co.

400 tons, 150 tons of boiler plates and 250 tons of boiler tubes, power plant, Los Angeles, to Llewellyn Iron Works.

CONTRACTS PENDING

3500 to 4000 tons, ten barges for the Federal Barge Line, Mississippi river; bids being asked.

1600 to 2000 tons, two ferry boats for Key System Transit, Oakland, Calif.; bids Nov. 30.

1200 tons, 16 steel flat deck scows, about 75 tons each, for bureau of canals, department of public works, Albany, N. Y.; date of bids to be announced shortly.

1000 tons, two steamboat barges for use on Ohio river by Oscar F. Barrett, Cincinnati 201 x 40 x 6 feet; bids being asked.

1000 tons, water pipe job, Bend, Oreg.; specifications not yet out.

850 tons, pipe line, Bend, Oreg.; bids in Nov. 20.

700 tons, barge for the Santa Fe system, San Francisco; bids being received.

600 tons pipe line, Everett, Wash.; bids Dec. 1.

Semifinished

Valley Mills Ask $36 for First Quarter Sheet Bars—Pittsburgh Makers Advance

WHILE shipments are being made in large volume on contracts recently placed enough new business has come out at higher figures to indicate definitely the stronger position of the market. Valley mills have advanced to $36 for sheet bars, billets under 4 x 4 and slabs under 2 x 8 inch for first quarter. Standard billets and slabs are $35, valley.

SEMIFINISHED STEEL PRICES, PAGE 1290

Youngstown, O., Nov. 17.—Prices for first quarter semifinished material were announced this week by one district producer. Sheet bars, billets, smaller than 4 x 4 inches, and slabs smaller than 8 x 2 inches are quoted at $36, Youngstown, compared with this quarter's price of $35, Youngstown. Standard billets and slabs are quotable at $35, Youngstown. Other semifinished producers here will announce their prices this week. Sheet producers are covered on sheet bars for this quarter at $33.50 Youngstown.

Cleveland, Nov. 17.—Specifications and shipments of sheet bars and billets are heavy, and new demand is more active. Some makers are quoting sheet bars, billets, smaller than the standard 4 x 4 inches, and slabs under 2 x 8 inches at $36, Youngstown, with standard billets and slabs available at $35, Youngstown. The leading maker here has taken some lots of sheet bars and small size billets at $37.50, and quotes this price also on small size slabs, Cleveland, Youngstown, or Pittsburgh, for delivery this month or next.

Pittsburgh, Nov. 17.—Additional billet and slab orders have been taken this past week, some for in excess of 3000 tons each at the $35, Pittsburgh base figure. While one representative producer has inaugurated an extra $2.50 for small billets, including the price on the latter $37.50, others are quoting $36.50, but no small billet inquiries are pending here. Nothing less than $35 is being quoted on sheet bars and $36 has been named since last Friday by some, including the Youngstown Sheet & Tube Co. and Jones & Laughlin Steel Corp. Starting Nov. 11 various producers raised wire rods $1, going to $46. One or two inquiries are out but some overdue specifications on $45 contracts now are being received. Skelp is unchanged at 1.90c, with no inquiries current.

Philadelphia, Nov. 17.—Several billet tonnages are pending for first quarter. The tendency is toward $36, Pittsburgh, for rerollers, but the market has not yet developed fully.

Iron and Steel Scrap Prices

Corrected to Tuesday Noon. Gross Tons Delivered to Consumer

Steel Works Scrap

HEAVY MELTING STEEL

Birmingham	14.00 to 14.50
Boston (dealers)	12.50 to 13.50
Buffalo	18.00 to 18.50
Buffalo, No. 1	19.50
Chicago	16.25 to 16.75
Cincinnati (dealers)	14.00 to 14.50
Cleveland	17.50 to 18.00
Detroit	15.50 to 16.00
Eastern Pennsylvania	17.50 to 18.00
Bethlehem delivery	16.50 to 17.00
New York (dealers)	12.50 to 13.00
Pittsburgh	19.00 to 19.50
St. Louis	16.25 to 16.75
Valleys	18.50 to 19.00

COMPRESSED SHEETS

Buffalo	18.00 to 18.50
Chicago	14.00 to 14.50
Cleveland	15.50 to 15.75
Detroit	13.25 to 13.75
Pittsburgh	18.00 to 18.50
Valleys	17.00 to 17.50

BUNDLED SHEETS

Buffalo	15.50 to 16.00
Cincinnati (dealers)	10.50 to 11.00
Cleveland	12.50 to 12.75
Eastern Pennsylvania	15.00
Pittsburgh	17.00 to 17.50
St. Louis	10.25 to 10.75
Valleys	15.25 to 15.75

SHEET CLIPPINGS, LOOSE

Chicago	9.50 to 10.00
Cincinnati	10.50 to 11.00
Detroit	10.50 to 11.00

STEEL RAILS, SHORT

Birmingham	14.00 to 14.50
Buffalo	19.50 to 20.00
Chicago	20.00 to 20.50
Cincinnati (dealers)	18.00 to 18.50
Cleveland (over 6 ft.)	16.75 to 17.00
Detroit	17.00 to 17.50
St. Louis	19.25 to 19.75

STOVE PLATE

Birmingham	14.00 to 14.50
Boston (consumers)	14.00 to 14.50
Buffalo	15.00 to 15.25
Chicago	17.25 to 17.75
Cincinnati (dealers)	11.00 to 11.50
Cleveland	13.75 to 14.00
Detroit (net tons)	13.25 to 13.75
Eastern Pennsylvania	15.00
New York (dealers)	10.50 to 12.00
Pittsburgh	14.00 to 14.50
St. Louis	15.00 to 15.50

LOW PHOSPHORUS

Buffalo	20.50 to 21.00
Cincinnati (dealers)	18.50 to 19.00
Eastern Pennsylvania	21.00 to 22.00
Pitts. billet and bloom crops	24.00 to 24.50

SHOVELING STEEL

Chicago	16.00 to 16.50
Pittsburgh	15.00 to 15.50
St. Louis	16.00 to 16.50

KNUCKLES, COUPLERS, SPRINGS

Chicago	19.50 to 20.00
Eastern Pennsylvania	20.50 to 21.50
Pittsburgh	22.50 to 23.00
St. Louis	18.00 to 18.50

FROGS, SWITCHES, GUARDS

Chicago	18.50 to 19.00
Eastern Pennsylvania	17.00 to 17.50
St. Louis	18.50 to 19.00

ANGLE BARS—STEEL

Buffalo	16.50 to 17.00
Chicago	19.50 to 20.00
St. Louis	17.25 to 17.75

Iron Mill Scrap

RAILROAD WROUGHT

Birmingham	13.00 to 13.50
Boston (dealers)	13.50 to 14.00
Buffalo, No. 1	15.75 to 16.25
Buffalo, No. 2	18.00 to 18.50
Chicago, No. 1	17.75 to 18.25
Chicago, No. 2	16.25 to 16.75
Cincinnati, No. 1 (dealers)	11.00 to 11.50
Cleveland, No. 1	13.75 to 14.25
Eastern Pennsylvania	18.50 to 19.00
New York, No. 1 (dealers)	15.00 to 16.00
Pittsburgh, No. 1	15.50 to 16.00
Pittsburgh, No. 2	19.00 to 19.50
St. Louis, No. 1	15.00 to 15.50
St. Louis, No. 2	16.00 to 16.50

WROUGHT PIPE

Boston (dealers)	12.00 to 12.50
Buffalo	15.00 to 15.50
Eastern Pennsylvania	16.50 to 17.00
New York (dealers)	12.75 to 13.25

YARD WROUGHT

Boston	12.00 to 12.50
Eastern Pennsylvania	17.00 to 17.50

BUSHELING

Buffalo	17.00 to 17.50
Chicago, No. 1	14.25 to 14.75
Chicago, No. 2	10.00 to 10.50
Cincinnati, No. 1 (dealers)	14.00 to 14.50
Cleveland, No. 1	14.75 to 15.00
Cleveland, No. 2	14.25 to 14.50
Eastern Pennsylvania	14.00 to 15.00
Pittsburgh, No. 1	16.50 to 17.00
St. Louis, No. 1	14.00 to 14.50

MACHINE SHOP TURNINGS

Birmingham	8.00 to 8.50
Boston (chemical)	9.50 to 10.00
Buffalo	13.00 to 13.50
Chicago	10.00 to 10.50
Cincinnati (dealers)	10.50 to 11.00
Cleveland	13.75 to 14.00
Detroit	11.25 to 11.75
Eastern Pennsylvania	15.00
New York (dealers)	10.00 to 10.50
Pittsburgh	15.00 to 15.50
St. Louis	10.00 to 10.50
Valleys	12.50 to 13.00

CAST IRON BORINGS

Birmingham (chemical)	15.00 to 16.00
Birmingham (plain)	8.00 to 8.50
Boston (chemical)	11.50 to 12.00
Boston (dealers)	9.00 to 9.50
Buffalo	13.00 to 13.50
Chicago	13.25 to 13.75
Cincinnati (dealers)	10.50 to 11.00
Cleveland	14.75 to 15.25
Detroit	11.75 to 12.25
Eastern Pennsylvania	14.50 to 14.75
Eastern Pennsylvania (chem.)	17.00 to 17.50
New York (dealers)	10.50 to 11.00
Pittsburgh	15.00 to 15.50
St. Louis	13.00 to 13.50
Valleys	13.50 to 13.75

MIXED BORINGS AND TURNINGS
For blast furnace use

Boston (dealers)	8.50 to 9.00
Buffalo	12.75 to 13.25
Cincinnati (dealers)	10.50 to 11.00
Cleveland	14.75 to 15.00
Detroit	11.75 to 12.25
Eastern Pennsylvania	13.50 to 14.00
New York (dealers)	10.25 to 10.75
Pittsburgh	15.00 to 15.50

PIPES AND FLUES

Chicago	13.00 to 13.50
Cincinnati (dealers)	9.50 to 10.00
Cleveland	12.25 to 12.50
St. Louis	12.50 to 13.00

RAILROAD GRATE BARS

Buffalo	14.50 to 14.75
Chicago	17.25 to 17.75
Cleveland	13.75 to 14.00
Eastern Pennsylvania	15.00
New York (dealers)	11.50 to 12.00
St. Louis	14.00 to 14.50

FORGE FLASHINGS

Boston (dealers)	10.00 to 10.50
Buffalo	14.50 to 15.00
Detroit	11.50 to 12.00
Cleveland (under 10 in.)	14.25 to 14.50
Cleveland (over 10 in.)	14.25 to 14.50
Detroit	11.50 to 12.00
Pittsburgh	16.00 to 16.50

FORGE SCRAP

Boston (dealers)	10.00 to 10.50
Chicago	19.50 to 20.00
Eastern Pennsylvania	14.50 to 15.00

ARCH BARS AND TRANSOMS

Chicago	24.00 to 24.50
St. Louis	22.50 to 23.00

Iron and Steel Works Scrap

AXLE TURNINGS

Boston (dealers)	10.00 to 10.50
Buffalo	15.00 to 15.50
Chicago	14.25 to 14.75
Cleveland	15.25 to 15.50
Eastern Pennsylvania	15.50 to 16.00
Pittsburgh	18.00 to 18.50
St. Louis	13.50 to 14.00

STEEL CAR AXLES

Birmingham	18.00 to 20.00
Boston (shipping point)	17.50 to 18.00
Buffalo	20.00 to 20.50
Chicago	19.75 to 20.25
Cleveland	18.00 to 18.50
Eastern Pennsylvania	24.00 to 25.00
Pittsburgh	23.00 to 23.50
St. Louis	20.50 to 21.00

SHAFTING

Boston (shipping point)	18.50 to 19.00
Chicago	21.75 to 22.25
Eastern Pennsylvania	23.00 to 24.00
New York (dealers)	18.50 to 19.50
St. Louis	18.00 to 18.50

Iron Foundry Scrap

CAR WHEELS

Birmingham, iron	16.00 to 16.50
Boston (consumers)	17.50 to 18.00
Buffalo, iron	17.00 to 17.50
Buffalo, steel	18.50 to 19.00
Chicago, iron	18.00 to 18.50
Chicago, steel	19.50 to 20.00
Cincinnati	14.00 to 14.50
Eastern Pennsylvania	18.50 to 19.00
New York iron (dealers)	14.00 to 15.00
Pittsburgh, iron	19.00 to 19.50
Pittsburgh steel	22.00 to 22.50
St. Louis, iron	18.00 to 18.50
St. Louis, steel	19.00 to 19.50

NO. 1 CAST SCRAP

Birmingham, cupola	17.00 to 17.50
Boston	19.00 to 19.50
Buffalo	17.00 to 17.50
Chicago, No. 1 machinery	21.00 to 21.50
Chicago No. 1 railroad or agricultural	19.50 to 20.00
Cincinnati No. 1 Machinery cupola (net tons dealers)	19.00 to 19.50
Cleveland, cupola	18.00 to 18.50
Detroit (net tons)	15.00 to 15.50
Eastern Pennsylvania, cupola	18.50 to 19.00
New York, cupola (dealers)	15.00 to 15.50
Pittsburgh, cupola	18.50 to 19.00
San Francisco, delivered	20.00 to 21.00
Seattle	18.00
St. Louis, railroad	17.00 to 17.50
St. Louis, agricultural	17.00 to 17.50
St. Louis, machinery	19.00 to 19.50
Valleys	18.00 to 18.50

HEAVY CAST

Boston	17.00 to 17.50
Buffalo (breakable)	16.50 to 17.00
Cleveland	13.00 to 13.50
Detroit (automobile) (net tons)	20.00 to 20.50
Eastern Pennsylvania	17.00 to 17.50
New York (dealers)	14.50 to 15.00
Pittsburgh	18.50 to 19.00

MALLEABLE

Boston, railroad	19.00 to 19.50
Buffalo	19.50 to 20.00
Chicago, agricultural	17.00 to 17.50
Chicago, railroad	19.50 to 20.00
Cincinnati, railroad (dealers)	14.50 to 15.00
Cincinnati, agricultural (dealers)	15.50 to 16.00
Cleveland, agricultural	18.50 to 18.75
Cleveland, railroad	19.50 to 20.00
Detroit	16.00 to 16.50
Eastern Pennsylvania, railroad	17.00
Pittsburgh, railroad	20.50 to 21.00
St. Louis, agricultural	15.50 to 16.00
St. Louis, railroad	16.75 to 17.25

Miscellaneous Scrap

RAILS FOR ROLLING
5 feet and over

Birmingham	18.00 to 18.50
Boston (dealers)	13.00 to 13.50
Buffalo	17.50 to 18.00
Chicago	19.50 to 20.00
Cleveland	17.25 to 17.50
Eastern Pennsylvania	18.50 to 19.00
New York	15.50 to 16.00
Pittsburgh district	21.50 to 22.00
St. Louis	19.25 to 19.75

LOCOMOTIVE TIRES

Chicago, No. 1	18.25 to 18.75
Chicago, cut	19.50 to 20.00
St. Louis, No. 1	17.00 to 17.50

LOW PHOSPHORUS PUNCHINGS

Chicago	18.50 to 19.00
Eastern Pennsylvania	19.00 to 20.00
Pittsburgh	21.50 to 22.00

Scrap

Lull in Buying But Dealers Keep Up Activity—Prices Hold Well and May Advance Soon

CONSUMERS of iron and steel scrap are not buying much tonnage but dealers are active and give the market most of its strength. They evidently believe renewal of buying will find supply inadequate. Heavy melting steel holds its recent gains. General dealer sentiment is for an advance and speculative buying makes up most of the present movement.

Chicago, Nov. 17.—Iron and steel scrap trade is divided, one camp holding to present levels and the other believing prices should advance more rapidly than in the past month. Consumer buying is so light that most prices are an average of dealer convictions. Dealers are trading among themselves in heavy melting steel at $16.25 to slightly over $16.50, while some producers have obtained $17 and better for their accumulations. Melting steel appears to warrant a range of $16.25 to $16.75. A few small sales of railroad malleable have been made at $19.75, tracks. The turnings consumer at Brackenridge, Pa., is buying at about $10.50, Chicago.

Boston, Nov. 17.—Demand from Pennsylvania steel works keeps the New England scrap market active. Dealers have paid $14 f.o.b. shipping point for heavy steel for Pennsylvania. The American Steel & Wire Co. took a moderate tonnage at $15.50 delivered. Machine shop turnings are dull at $10 shipping point. Cast grades still lag despite pig iron activity. Textile scrap holds at $21 delivered.

Philadelphia, Nov. 17.—An eastern mill has paid $18, delivered, for 2000 tons of heavy melting steel and this figure now is difficult to shade. Several other grades have advanced. All are in good demand but dealers hesitate to sell ahead as they expect an advance.

New York, Nov. 17.—Dealers' buying comprises most activity in scrap and mills are doing little. A substantial portion of current business is speculative, dealers generally looking for higher prices when mills again become active buyers. Dealer's buying prices are unchanged, following the advance in several grades a week ago.

Buffalo, Nov. 17.—Liberal purchases of heavy melting steel have been made and are in progress in this district. Donner has purchased a substantial lot of No. 1 material at $19.50, according to reports, and continues to contract. Some sales of ordinary heavy melting steel at $18 to $18.50 are also reported and dealers are finding no difficulty in getting orders at the lower price.

Pittsburgh, Nov. 17.—The past week has been quiet, practically the only transactions in iron and steel scrap being among brokers, who pay $19 for heavy melting steel while mill orders were taken at $19.50. Apparently the needs of Midland, Pa., Weirton, W. Va., and other nearby consuming points have been met for the time being. Heavy breakable cast has sold at $17.50 to $18 but current demands are low, as they are for all the other cast grades.

Cincinnati, Nov. 17.—An embargo has been placed on iron and steel scrap shipments into the Portsmouth, O., district by the Wheeling Steel Corp., as a result of recent heavy receipts. New business is confined chiefly to fill-in lots. Dealers' buying prices are firm.

Detroit, Nov. 17.—Iron and steel scrap continues to hold the strength developed last week. Supplies of scrap continue abundant as the automotive industry maintains its rapid production pace.

St. Louis, Nov. 16.—While no specific advances have been made the tone of iron and steel scrap was weaker. Mills are not buying, despite the recent placement of railroad tonnage, and material for foundries and blast furnaces is dull. Demand for malleable has vanished, and quiet prevails also in rolling mill scrap. Railroad lists include: Wabash, 2000 tons; Southern Pacific, 1500 tons; Missouri, Kansas & Texas, 1300 tons; Rock Island, 6500 tons; Texas & Pacific, 1000 tons; Louisville & Nashville, 5000 tons and Nashville, Chattanooga & St. Louis 450 tons of scrap and five miles of relaying rails.

Birmingham, Ala., Nov. 16.—General activity continues and an advance of $1 per ton has not lessened activity. The melt continues heavy, especially by steel mills.

Cleveland, Nov. 17.—Consumers are conspicuously absent from the iron and steel scrap market, trading being almost entirely confined to dealers still uncovered on contract material. Melters have fairly large stocks although one Cleveland steelmaker recently embargoed is taking tonnage.

Sheets

Prices Advanced $2 More by Independents—Sales and Shipments Continue on High Plane

ANOTHER advance of $2 in the price of sheets for first quarter has been announced by some of the leading independents, in the Pittsburgh and valley districts. The new levels are 2.50c, Pittsburgh, on blue annealed; 3.35c on black; 4.50c on full finished and 4.60c on galvanized. The Steel corporation has not as yet taken similar action. The market continues active.

SHEET PRICES, PAGE 1290

Youngstown, Nov. 17.—Books of sheetmakers were opened and prices are announced this week for first quarter. The new prices are 2.50c, Pittsburgh on blue annealed, 3.35c on black, 4.60c on galvanized and 4.50c on automobile sheets. This schedule follows closely the announcement of $36, Youngstown, on first quarter sheet bars. A new policy has been inaugurated by producers of high finished sheets, which if adhered to rigidly will lighten the burden of full finished sheet makers somewhat. Heretofore the consumer has been taking 15 per cent of the seconds arising in the filling of his orders. Under the new arrangement, consumers of auto body and No. 1 metal furniture stock are asked to take 25 per cent of the seconds of tonnage 21 gage and lighter. On orders for 20 gage and heavier, the usual 15 per cent clause remains. Meanwhile many mills are well committed into December; some are out of the market until 1926. Since last week new business has been increasing. A consumer in the Detroit district is asking for quotations on 15,000 tons of full finished, while another is seeking a price on 6000 tons.

Boston, Nov. 17.—Sales of galvanized sheets at Boston during the past week reached a total close to the peak for the year. Eastern makers are sold to capacity for the balance of year on many sizes. Galvanized sheets hold firm at 4.40c, Pittsburgh, and black at 3.20c.

Philadelphia, Nov. 17.—Due to the failure of the Steel corporation subsidiary to take the lead, several independent sheet producers have announced for the remainder of this year and first quarter, sheet prices of 2.50c, Pittsburgh, for blue; 3.35c for black, 4.50c for full finished and 4.60c for galvanized. These figures are rapidly developing as minimum. Makers generally are sold up entirely, or have little tonnage left for this year. First quarter bookings are developing slowly.

Pittsburgh, Nov. 17.—Sheet orders, specifications, shipments and operations still are high. This is abnormal in certain directions due primarily to the continuance of buying on the part of the automotive industry at a time

when its steel consumption usually drops. Specifications for the American Sheet & Tin Plate Co. gave it the biggest week of the year. Operations for the leading interest were maintained at approximately the same point as the preceding week, 85 per cent or slightly better. Independents are on the basis of 80 to 85 per cent. Several independents have increased their levels another $2, including the American Rolling Mill Co., Sharon Steel Hoop Co., Youngstown Sheet & Tube Co., Weirton Steel Co. and other representative makers. The new levels are 3.35c on black, 4.60c on galvanized, 2.50c on blue annealed, and 4.50c on full-finished, and one or two report a fair number of orders at the new levels since they went into effect. Mills are practically filled up with specifications for all they can produce before Jan. 1 and at these figures they are willing to take business for shipment in the first quarter of next year. Not much has been booked so far for 1926 delivery, and the American Sheet & Tin Plate Co. has not opened its books for the first quarter. For the time being it maintains 3.25c, 4.50c, 2.50c and 4.40c bases, respectively, on the four grades.

Cincinnati, Nov. 17.—The Newport Rolling Mill Co., Newport, Ky., has announced its first quarter prices on sheets as follows: 10 gage blue annealed 2.50c; 28 gage black 3.35c and 28 gage flat galvanized 4.60c Pittsburgh.

Chicago, Nov. 17.—Western mills may advance sheets again by the end of this week. Pittsburgh district makers are beginning to ask $2 more and western mills are expected to follow suit. Today western prices are 4.60c, Gary and Indiana Harbor, for galvanized, 2.50c for blue and 3.35c for black. Regular customers sometimes get deliveries in three weeks but four to six weeks is more general. Specifications are sufficient for practically full operations. Some users are placing forward requirements more freely.

St. Louis, Nov. 17.—Inquiry for sheets for first quarter is increasing. Purchasing is of a more general character than in a long while. The leading local producer has not changed its quotations. The warehouses, however, have advanced No. 28 black, blue annealed and galvanized black from 4.50c to 4.60c, and on No. 28 blue annealed from 5.50c to 5.70c.

Tin Plate

Opening of First Quarter Books Deferred—Requirements Are Up

TIN PLATE PRICES, PAGE 1290

Pittsburgh, Nov. 17.—Those who expected tin plate books to be opened yesterday for the first quarter or first half of next year were disappointed. Action has been deferred. Last year the opening took place on Nov. 25. Specifications continue to be received and shipments are high. It is expected that 1925 production and consumption will exceed any previous year in history by at least 10 per cent. The two large can makers are lining up their requirements and while the tonnage has not been definitely decided, it will be between 300,000 and 350,000 tons. The Standard Oil Co. of New Jersey has not as yet closed on its first and second half requirements, 37,500 tons. While there may be an advance for the first quarter due to the high cost of tin and lead, the price for the present is $5.50.

Youngstown, O., Nov. 17.—Books of tin plate makers for first quarter continue closed, pending the announcement of the price to apply on business for that period. Meanwhile producers have mills scheduled well into December with business taken at $5.50 per base box. Hot mill and finishing units are operating full.

Strip Steel

Users Specifying More Fully and Future Buying Is Free

STRIP PRICES, PAGE 1290

Pittsburgh, Nov. 17.—Specifications are increasing from users of hot and cold-rolled strip steel. While many shipments are going out at a lower figure, 3.90c is the firm spot market price on cold strips and some orders for future shipment have been taken at that price. The hot strip quotation is firm at 2.30c base, and while many customers would do so, makers are not allowing them to protect themselves far ahead at that price. Operations average 85 to 90 per cent.

Pipe

Mill Bookings Steady—Jobber Prices Weaker—Detroit to Buy 17,000 Tons of Cast Pipe

BOOKINGS of full weight merchant pipe by mills are numerous but small. Jobbers are competing keenly for business. Cast pipe is a feature, with 17,000 tons on inquiry at Detroit predominating. New York is in the market for 6000 to 8000 tons. Foreign competition is not expected to be a serious factor in the Detroit bidding.

PIPE PRICES, PAGE 1290 AND 1330

Pittsburgh, Nov. 17.—Orders for standard full weight merchant pipe make up in number what they lack in size. Jobbers are ordering in small quantities to maintain well balanced stocks. Orders from West Virginia coal mining territory have been particularly numerous. One prominent tubular goods maker reports that even with the falling off in oil country goods buying, October was the best pipe selling month of the year, and November to date is sustaining this improvement. Occasionally small orders come in for casing and other oil country goods, but generally orders for this class of material will continue to fall off until next year. The mill price situation is firm, but the price war apparently still is on among distributors, some pipe bought by a jobber at 63 and 5 off being sold at 64 off this past week. Seamless tubes are in good demand but orders for mechanical tubing, locomotive tubes, etc., only are fair.

Boston, Nov. 17.—While municipalities still hold aloof from the cast pipe market, commercial and private buying is at a high rate and eastern foundries are booked far ahead.

Chicago, Nov. 17.—Detroit opens bids Nov. 23 on 17,000 tons of 6, 8, 12 and 16-inch cast iron pipe. When Detroit opened bids previously this year French competition was sharp, and there is speculation whether a November letting will make water delivery of foreign pipe impossible. Southern carriers have many cars loaded with cast iron pipe for Florida points held up by embargoes but so far deliveries from Birmingham north have not been delayed. Chicago pipe sales have declined but for the country as a whole sales and shipments still balance. Cast iron pipe 6-inch and over is firm at $42, Birmingham, or $50.20, Chicago.

New York, Nov. 17.—The local water department is expected to inquire shortly for 6000 to 8000 tons of cast pipe. Municipal demand at the moment is slack, with a lot of 1400 tons for Providence, R. I., a feature. B. Nicoll & Co., representing French makers, are low bidders. The latter have booked 4500 tons for the Consolidated Gas Co., Baltimore. The market continues strong.

Birmingham, Ala., Nov. 16.—Cast iron pipe production shows but little change. Development looking to greater production are being pushed. United States Cast Iron Pipe & Foundry Co. is adding a new cupola to its North Birmingham plant and American Cast Iron Pipe Co. is building a complete new cupola department besides a new centrifugal pipe shop. Shipments of cast iron pipe are steady.

CONTRACTS PLACED

300 tons, Melvindale, Mich., to United States Cast Iron Pipe & Foundry Co.
175 tons, Summit, Ill., to James B. Clow & Sons.
218 tons, 167 tons of 10-inch and 51 tons of 6-inch, for Paso Robles, Calif.; to unstated makers.
4500 tons, cast pipe for Consolidated Gas Co., Baltimore, to B. Nicoll & Co., representing French makers.

CONTRACTS PENDING

17,000 tons, Detroit, divided as follows: 3300 tons of 6-inch, 5700 tons of 8-inch, 4000 tons of 12-inch and 4000 tons of 16-inch; bids Nov. 23.

6000 to 8000 tons, department of water, gas and electricity, New York; bids to be asked shortly.

1400 tons, work for Providence, R. I.; B. Nicoll & Co., New York, representing French makers, low.

Bolts, Nuts, Rivets

Orders and Specifications Satisfactory and Prices Firm

NUT AND BOLT PRICES, PAGE 1290

Chicago, Nov. 17.—Bolts and nuts remain firm on the basis of 50, 10 and 10 off for large machine bolts and continuation of this price for first quarter would not be surprising. While there still is talk of an advance in stove bolts, the present quotation of 80, 10 and 5 off plus 2½ off in bulk still governs. Specifications from automobile and implement industries continue high. Demand for stove bolts is slightly better.

Pittsburgh, Nov. 17.—Nut and bolt orders continue in fair number and specifications are increasingly heavy. The nut and bolt discount is firm at 50, 10 and 10 off on large machine bolts. Jobbers are ordering liberally. While most rivet shipments are against lower priced orders, 2.60c base is the quotation on current inquiry. Operations average 70 per cent.

Cleveland, Nov. 17.—Demand for bolts, nuts and rivets continues active and prices are firm. Rivet specifications have shown a tendency to be somewhat spasmodic but the aggregate volume of business is reported better than in the previous week. Large machine bolts are firm on the basis of 50, 10 and 10 per cent off list.

Iron Ore

Market Is Stronger—Week's Sales Total 75,000 Tons

Cleveland, Nov. 17.—A stronger situation has developed in the Lake Superior iron ore market with the shipping season practically closed. Sales during the past week have aggregated about 75,000 tons of standard grades at full market prices. The weakness in the market reported from some quarters recently is said to have pertained to sales of iron ore off grade at slightly below the prices of the standard grades. In general the position of the market is much stronger at this time than during the earlier months of the season, and the outlook is far better for the ore producers.

Shipments from Lake Erie ports this season to Nov. 1 totaled 24,965,594 tons, compared with 20,781,175 tons in the same period last year. The balance on dock Nov. 1 was 7,656,229 tons, against 8,118,921 tons last year.

Bars

Market Strong and Deliveries Pushing Into Next Year—Production High

PRODUCERS of soft steel bars are operating practically full but are unable to keep pace with bookings and deliveries on current orders are deferred into next year. For most part the price is firm at prevailing levels, though some small mills with limited range of sizes are shading to get tonnage. Practically all classes of consumers are buying freely.

BAR PRICES, PAGE 1290

Chicago, Nov. 17.—Soft steel bars, like other heavy finished products, are strong at 2.10c, Chicago, and on some mills delivery has become deferred to January, but the strength evidenced by Pittsburgh markets has become an important factor. Whether 2.10c lives out the quarter will be determined before first quarter is in prospect. General buying of bars continues as heavy as for 60 days, probably more so, while the gap caused by lack of railroad buying is being largely filled. The automotive industry is maintaining its high rate. The implement industry is experiencing the best last quarter in five years and is a continuing factor in the bar market.

Bar iron is feeling the vigor imparted by improved car buying and the market is firming toward 2.00c, Chicago. Rail steel is unchanged at 2.00c to 2.10c, Chicago, and double turn operations prevail.

Boston, Nov. 17.—With a single order of 1000 tons, steel bar sales at Boston during the past week probably reached the peak of the year. The price is firm at 2.00c Pittsburgh.

Buffalo, Nov. 17.—The endeavor to establish 2.365c, Buffalo, or 2.10c, Pittsburgh, on steel bars, is continuing in this district but not all sellers are even nominally at this level. Inquiry is fairly good and sales since Nov. 1 have been heavier. Output is gaining slowly.

Philadelphia, Nov. 17.—Demand for steel bars is good but first quarter tonnage is not yet coming out rapidly. Prices range from 2.00c to 2.10c, Pittsburgh with shading by small eastern makers with a limited range of sizes. Iron bar sales are heaviest of the year at a minimum of 1.90c, Pittsburgh.

Pittsburgh, Nov. 17.—Merchant steel bar makers continue to operate practically 100 per cent and specifications are heavy. Prices of 2.00c to 2.10c are quoted, the latter on small quantities although one or two makers have inaugurated the 2.10c figure as a minimum for prompt or future delivery. Makers generally have not opened books for first quarter. An extra of $2 per ton is being charged to cold finishers for open hearth or bessemer screw stock material.

Refined iron bar demand is slowly improving. The prices start at 3.00c.

Cleveland, Nov. 17.—A number of contracts for first quarter have been closed in this territory at 2.00c, Pittsburgh or 2.19c, Cleveland. This remains the market price although a number of smaller lots under 50 tons have been booked at 2.10c. Incoming tonnage is very good and shows a substantial increase over that of the corresponding date in October. Deliveries have further receded and with some mills, are back to 60 days.

Cold Finished Steel

Increased Buying—Contracts For First Quarter On New Card

Pittsburgh, Nov. 17.—Last week was the best of the year for new business to one or two cold finishers here. Others report a regular buying movement and while much is for prompt needs, some first quarter contracts have been entered since the adoption of a new card of extras Nov. 12 superseding the March 10, 1924 card carrying advances of $1 to $3 per ton. Operations are averaging 75 per cent. The base price is firm at 2.50c.

Boston, Nov. 17.—Cold strip finishers in New England report a marked increase in orders during the past week, and deliveries on some sizes are running into the new year. The price tendency is upward. Warehouses have advanced cold-rolled strip from 6.15c to 6.30c base.

Hoops and Bands

Operation Full and Prices Tend to Higher Level

HOOP PRICES, PAGE 1290

Pittsburgh, Nov. 17.—Buying of hoops and bands is well sustained. Hot strip makers are operating their narrow mills 100 per cent and are booked for several weeks. While 2.50c is quoted here, some effort is being made in other sections to obtain 2.60c.

Chicago, Nov. 17.—An advance in bands is impending. The market is now quoted at 2.60c, Chicago, for sizes under 6 inches and 2.50c for 6 inches and over.

Structural Shapes

Activity Continues Heavy, New York Continuing Center of Demand—Prices Firmer But Show Range—Inquiries Numerous

ACTIVITY in the structural market is undiminished in the New York district. Awards generally involve smaller tonnages. Inquiries are numerous but mostly small. Subway work in New York in the next two years will take about 200,000 tons. Another river bridge at Pittsburgh will take 5000 tons. A loft building requiring 4500 tons and more than a half dozen contracts of 1000 to 2000 tons were awarded in New York during the past week. Mills are well booked, deliveries being extended to four weeks in some cases. Some fabricators are booked 90 days ahead. Despite efforts to stabilize the market at 2.00c, Pittsburgh, on plain material, 1.90c tonnage has not disappeared. At Chicago plain material is strong at 2.10c.

STRUCTURAL SHAPE PRICES, PAGE 1290

New York, Nov. 17.—Structural activity continues heavy, with several new jobs out involving 2000 tons and over. The mills and shops are not in as good a position as the heavy buying of recent weeks might indicate, as heavy tonnages had been placed prior to Nov. 1 on the pound price basis, specifications for which in many cases have not as yet come through. Position of the mills and fabricating shops has improved, a fact reflected by the upward tendency in prices. The Pittsburgh price of 1.90c is difficult to shade on shapes.

Fabricators estimate that approximately 200,000 tons of subway work will be let here in two years time.

Boston, Nov. 17.—New England structural awards during the past week for the first time in several months were meager. New work is appearing in good volume and prices are firm.

Philadelphia, Nov. 17.—Efforts to raise structural plain material prices has not produced any change. Some of the lowest prices done recently have been repeated. One large eastern maker is operating full.

Pittsburgh, Nov. 17.—Structural shape fabricators here report a widespread demand for small amounts of material especially in the coal-producing areas. While an effort is being made to line up shapes on the basis of 2.00c, the 1.90c figure has not disappeared entirely on the two former products. An increasing number of makers have adopted 2.00c as a minimum and others while having protections out at 1.90c will not make any more. The first quarter price probably will be 2.00c.

Chicago, Nov. 17. — Structural awards are good for November, with small work more in evidence. Some fabricators are booked ahead 90 days and a number of jobs for spring delivery have been taken. Mill deliveries on plain material are extended to four weeks and bookings continue to exceed shipments. Recent heavy car awards are swelling the demand for structurals. Plain material is strong at 2.10c, Chicago.

Cleveland, Nov. 17.—Pending structural work is light, few new projects being brought up. Plain material prices are firm at 2.19c Cleveland or 2.00c, Pittsburgh, at which figure first quarter business is being booked. Small tonnages continue quotable at 2.29c Cleveland or 2.10c Pittsburgh. Fabricated prices have stiffened although attractive work still finds keen competition from fabricators.

Awards Compared

	Tons
Awards this week	25,189
Awards last week	56,848
Awards two weeks ago	41,094
Awards this week in 1924	27,073
Average weekly awards, Oct.	38,175
Average weekly awards, 1925	33,922

CONTRACTS PLACED

4500 tons, Fred French office building, Fifth avenue and Forty-fifth street, New York, to the Taylor-Fichter Steel Construction Co.

2000 tons, hotel Coney Island, New York, to the Shoemaker Bridge Co.

1750 tons, loft, Twenty-ninth street and Madison avenue, New York, to the Harris Structrual Steel Co.

1400 tons, two apartments, Butler and Plaza streets, Brooklyn, N. Y., to the Harris Structural Steel Co.

1250 tons, apartment in Seventy-second street, between Madison and Park avenue, New York, to the Easton Structural Steel Co.

1200 tons, loft, Lexington avenue and Thirty-third street, New York, to the Harris Structural Steel Co.

1127 tons, building for Pere Marquette Building Corp., New Orleans, to St. Louis Structural Steel Co. S. Scott Joy, 2001 West Pershing boulevard, Chicago, architect.

1100 tons, office building, 117 Liberty street, New York, reported awarded unstated fabricator.

1000 tons, office building, Florida Realty & Investment Co., Jacksonville, Fla., to Levering & Garrigues Co.

1000 tons, 15-story apartment at Fifty-eighth street and Sixth avenue, New York, to the Patterson Bridge Co.

1000 tons, Harris county bridge, Houston, Tex., to American Bridge Co.

1000 tons, theater, Fifty-fourth street and Sixth avenue, New York, to Taylor-Fichter Steel Construction Co.

800 tons, Colton Manor hotel, Atlantic City, to the American Brown, Boveri Corp.

700 tons, two theaters, Woodside, L. I., to George A. Just Co.

600 tons, bridge for the New York Central, Woodland, Pa., to the Bethlehem Steel Co.

600 tons, boiler house for the Franklin Sugar Refining Co., Philadelphia, to Shoemaker Bridge Co.

600 tons, bank, Fifteenth and Walnut streets, Philadelphia, to the American Bridge Co.

500 tons, bank, Jacksonville, Fla., to Lehigh Structural Steel Co.

500 tons, building, Sixteenth and Chestnut streets, Philadelphia, to American Bridge Co.

400 tons, plant for Proctor & Gamble Co., Staten Island, N. Y., through H. K. Ferguson Co., general contractor, to Pittsburgh Bridge & Iron Works.

300 tons; plant addition, Worthington Pump & Machinery Corp., Elmwood, O., awarded through H. K. Ferguson Co., to McClintic-Marshall Co., announced last week as let to unstated fabricator.

300 tons, industrial building for the Jessup & Moore Paper Co., Wilmington, Del., to McClintic-Marshall Co.

300 tons, industrial building in Fleetwood, Pa., to the Austin Co.

260 tons, Maryland Casualty building, Philadelphia, to McClintic-Marshall Co.

255 tons, 92 tons for Lumus Cotton Gin Co., Columbus, Ga., to Converse Bridge & Steel Co.; 80 tons for Lamson Co., Syracuse, N. Y., to Kellogg Structural Steel Co., and 85 tons for Detroit Stoker Co., Monroe, Mich., to Rogers Structural Steel Co., all through H. K. Ferguson Co., general contractor.

250 tons, Cranleigh hospital, New York, to Lehigh Structural Steel Co.

225 tons, telephone exchange building, Brighton, Mass., to New England Structural Co. General contract to Sawyer Construction Co.

220 tons, building for Link-Belt Co., Chicago, to Flint Structural Steel Co., through H. K. Ferguson Co., general contractor, announced last week as 150 tons.

215 tons, West Philadelphia Title & Trust building, Philadelphia, to McClintic-Marshall Co.

200 tons, bridge for the Pennsylvania railroad in Ohio, to the Pittsburgh Bridge & Iron Works.

200 tons, Elks' club, Aurora, Ill., to Rock Island Bridge & Iron Co.

191 tons, junior and senior high schools, Marshalltown, Iowa, to Pittsburgh-Des Moines Steel Co.

160 tons, mill building for Acme Steel Co., Chicago, to McClintic-Marshall Co.

129 tons, Wallace Block, Des Moines, Iowa, to Pittsburgh-Des Moines Steel Co.

107 tons, plant for Union Drawn Steel Co. at Hartford, Conn., through H. K. Ferguson Co., general contractor, to Fort Pitt Bridge Works.

100 tons, Mason office building, Forty-seventh street, New York, to Hedden Iron Construction Co.

100 tons, building for Brooklyn-Manhattan Transit Co., New York, to Lehigh Structural Steel Co.

Tonnage unstated, 80-foot bascule bridge over Welland ship canal, Welland, Ont., to Hamilton Bridge Works.

CONTRACTS PENDING

5000 tons, estimated, Riverton bridge across Monongahela river between McKeesport and Duquesne, Pa.; bids to be asked about Dec. 1.

3550 tons, subway Section 2, Route 5, New York; bids asked.

2500 tons, Roxy theater, New York; bids asked.

2500 tons, Shroeder & Koppel loft building, Thirty-seventh street and Sixth avenue, New York; pending.
2000 tons, express terminal for the Pennsylvania railroad, Long Island City, N. Y.; bids asked.
1500 tons, Niles Center, Ill., power station for Sanitary District of Chicago, 910 South Michigan avenue, Chicago; general contract to T. J. Forschner Contracting Co., 3028 East Ninety-sixth street, Chicago.
1200 to 1500 tons, First National bank, Charlotte, N. C.; general contract awarded Hunkin-Conkey Construction Co.
900 tons, office addition for the United Gas Improvement Corp., Philadelphia; bids asked.
800 tons, highway bridge over the Delaware river, Stockton, N. J.; bids asked.
600 tons, addition to the Ward Baking Co building, Pittsburgh; bids in.
500 tons, Skinner building, Seattle; bids in this week.
500 tons, plant addition for the Consolidated Gas & Electric Co., Baltimore; pending.
400 tons, store, New Haven, Conn.; bids asked.
350 tons, building for the Famous-Players-Lasky Corp., Boulevard of the Allies, Pittsburgh; bids about to be asked.
300 tons, high school, New Haven, Conn.; pending.
300 tons, Central police station, Pittsburgh, bids being taken by Director Rook, Pittsburgh; the Taylor-Meyer Co., low bidder on general contract.
150 tons, warehouse at Granite City, Ill., for National Enameling & Stamping Co.; pending.
110 tons, apartment house jobs, St. Louis; pending.

Concrete Bars

Demand Diminishing and Awards Are Small—Prices Show Little Change

BUYING of concrete bars is diminishing, although the decline in activity is not as pronounced as is usual in November. Inquiries are limited to few small tonnages and awards generally require but light amounts. Prices show little change, although firmness is evidenced and several recent increases have become established.

REINFORCING BAR PRICES, PAGE 1290

Chicago, Nov. 17.—Both sales and shipments of reinforcing bars are tapering off but not so acutely as in the average November. Most warehouses are going into the slackest months of the year with unusually good order books. Warehouse stocks are being enlarged and a strengthening in the mill price of billet bars for the first quarter is expected. Reinforcing billet bars are quoted at 2.60c, Chicago warehouse, while rail steel bars are claimed to be up to 2.20c, Chicago, in instances, although 2.10c still is common.

Boston, Nov. 17.—Concrete bar sales improved slightly during the past week. The price is firm at 2.00c Pittsburgh. The Boston warehouse price has been advanced to 3.10c. Work in prospect totals several thousand tons.

Pittsburgh, Nov. 17.—Several jobs are up here involving the use of small quantities of concrete bars but no large projects appear to be coming out. Concrete bars are quoted at 2.00c to 2.10c.

Buffalo, Nov. 17.—Reinforcing bar demand has eased off after a brisk fall business. There is not much new business in sight for the present. The new price of 2.75c for bars from stock has been established by recent sales.

Cleveland, Nov. 17.—Activity is declining in the local concrete bar market. Inquiries are few and awards fewer. New billet bars continue 2.19c to 2.25c Cleveland, and rail steel 1.80c to 1.90c, mill. No action has been taken on the general contract for the Willow sewage disposal plant taking 2000 tons.

Awards Compared

	Tons
Awards this week	3,400
Awards last week	5,965
Awards two weeks ago	3,630
Awards this week in 1924	3,295
Average weekly awards, Oct.	5,973
Average weekly awards, 1925	6,201

CONTRACTS PLACED

600 tons, apartment building at 1320 North State street, Chicago, to American System of Reinforcing; Hegeman-Harris Co., 431 North Michigan avenue, Chicago, general contractor.
600 tons, Skinner building, Seattle, to Pacific Coast Steel Co.
480 tons, superstructure for Ohio Bell Telephone Co. building, Cleveland, to Bourne-Fuller Co.
450 tons, Royal Hawaiian hotel, Honolulu, Hawaii, to Honolulu Iron Works.
200 tons, apartment house jobs, St. Louis, to unnamed jobber.
160 tons, school building for Chicago board of education, to Joseph T. Ryerson & Son Inc.; Lind Construction Co., 6404 South State street, Chicago, general contractor.
150 tons, bakery for United Realty Co., Toledo, O., to Bourne-Fuller Co.
150 tons, Sacred Heart Academy, Milwaukee, to Concrete Engineering Co.
110 tons, Bank of Italy, San Jose, Calif., to an unstated San Francisco jobber.
100 tons, building for Saginaw Products Co., Saginaw, Mich., to Calumet Steel Co.; Foundation Co., general contractor.
100 tons, bridge, Croydon, Pa., to Concrete Steel Co.
100 tons, Y. W. C. A., San Jose, Calif., to W. S. Wetenhall Co.
100 tons, Reo Motor Car Co. building, Newark, N. J., to Kalman Steel Co.
100 tons, Annin & Co. building, Verona, N. J., to Igoe Bros.

CONTRACTS PENDING

500 tons, hotel at 201 East Delaware street, Chicago, for Charles F. Henry, 7455 Greenview avenue, Chicago; Thielbar & Fugard, 77 West Washington street, Chicago, architect.
154 tons, substructure, Kirtland avenue pumping station, Cleveland; bids in Nov. 27 to Howell Wright, director public utilities.
130 tons, superstructure for Old National bank, Lima, O.; pending.
108 tons, reservoir lining, Seattle; bids under consideration.
100 tons, addition to the Ward Baking Co. building, Pittsburgh; bids being taken.
100 tons, building for Park Hall Improvement Co., Ansel road, Cleveland; pending.

Sheet Wages Unchanged

Youngstown, Nov. 17.—Sheet and tin mill workers will receive the same wages for the November-December period as they did in September and October, following the bi-monthly wage settlement made here recently. Representatives of independent sheet mills and the Amalgamated Association of Iron and Steel and Tin Workers reaffirmed the wage scale of the preceding two month period. Sheet and tin mill wages continue 28.5 per cent above the base for the next two months. Books of the mills showed an average of 3.10c for 26, 27 and 28 gage sheets for the previous period.

Sheet Sales Output and Shipments Increased

Pittsburgh, Nov. 17.—The National Association of Sheet and Tin Plate Manufacturers reports that for October sheet sales by member companies totaled 403,491 tons or 127.3 per cent of capacity. Output totaled 348,714 tons, or 106.4 per cent of capacity. Shipments amounted to 332,211 tons, 104.8 per cent. Unfilled tonnage totaled 595,583 tons, and finished stock on hand awaiting shipment at the close of the month totaled 83,244 tons. The amount in stock unsold was 40,200 tons, or 12.4 per cent of capacity. A table comparative with the preceding month follows:

	Net tons Oct., 1925	Per cent of capacity	Net tons Sept., 1925	Per cent of capacity
Total sales	403,491	127.3	286,029	89.6
Total production	348,714	106.4	295,810	92.7
Total shipments	332,211	104.8	262,050	82.1
Unfilled tonnage as of Nov. 1 and Oct. 1	595,583		497,698	
Finished stock on hand awaiting Shipment	83,244		84,211	
In stock unsold	40,200	12.3	36,587	11.5

To Erect New Warehouse

Philadelphia, Nov. 17.—Morris, Wheeler & Co., large iron and steel jobber, is expected to vacate its present site within the next five years, due to city beautification plans. Part of the property of the present warehouses will be devoted to a boulevard and the rest to the West Philadelphia terminal of the Pennsylvania railroad. To provide for future facilities Morris, Wheeler & Co. have purchased the plant of the former Vim Motor Truck Co., Roberts avenue and Fox street, comprising 22 acres and several buildings.

Rails, Cars

Car Buying Totaling 8200 Heaviest in Months — Rails Have Become Less Active

RAILROAD equipment buying of the last week, including 8200 freight cars, was the most active in many months. New York Central closed on 4500, Missouri Pacific on 3000 and Denver & Rio Grande on 700 cars. Rails have figured less in sales, attention now being centered on track accessories. New York Central has taken bids on 3,000,000 to 5,000,000 tie plates.

RAILROAD TRACK MATERIAL PRICES, PAGE 1290

Chicago, Nov. 17.—Freight car buying has taken a spurt, 8200 cars having been placed in the past week. This comprises 4500 by the New York Central, 3000 by the Missouri Pacific and 700 by the Denver & Rio Grande Western. Practically all of the 8200 cars will be built in this district, bringing western mills 80,000 tons of plates, shapes and bars. The Wabash inquiry is for 2000 automobile cars. The Santa Fe's 3000 cars may be let this week. A number of western roads which have not been active this year are expected in the car market shortly. This includes the Burlington.

Rail activity has been largely in the nature of formal booking and adjusting of recent tonnages. The Erie has placed 6000 tons with the Illinois Steel Co. The Pere Marquette is inquiring for 12,000 tons, the Grank Trunk for 7000 and the St. Louis-San Francisco for about 15,000 tons. The New York Central, Baltimore & Ohio and Missouri Pacific continue to figure on track fastenings.

New York, Nov. 17.—Featuring the eastern car market is an award of 4500 cars by the New York Central. This with buying in other sections of the country, particularly that of the Missouri Pacific which involved 3000 cars, is the best for some time. Inquiry includes 25 locomotives for St. Louis-San Francisco, 10 for Norfolk & Western and 10 for the Denver & Rio Grande.

Westinghouse International Co. booked 13 electric locomotives for the Chile Exploration Co.

The Pennsylvania inquiry is expected in a few days for large quantities of spikes, bolts, and other track accessories.

Pittsburgh, Nov. 17.—November as yet has not shown any improvement in light rail buying. The majority of orders are for single carloads. The practice is spreading of quoting light rails on a gross ton basis instead of as formerly on the basis of cents per pound. While a few orders recently were taken at $36 per gross ton, some small lots recently brought $37 and $38.

Standard rail orders recently placed include 1000 tons from the Western Maryland and 1500 tons from a large manufacturing interest to Carnegie Steel Co.

Local producers of tie plates are informed that the Baltimore & Ohio has not as yet distributed orders on its 3,000,000 tie plate inquiry. Bids closed at Nov. 16, on a minimum of 3,000,000 and a maximum of 5,000,000 tie plates for the New York Central as well as upon a minimum of 25,000 and a maximum of 45,000 kegs of spikes. The Boston & Albany wants 7500 kegs of spikes.

ORDERS PLACED

New York Central, 4500 freight cars, awarded as follows: 2000 55-ton steel box cars, to American Car & Foundry Co.; 1000 55-ton steel gondolas, to Pullman Car & Mfg. Co.; 500 55-ton steel gondolas to Standard Tank Car Co.; 500 55-ton gondolas, to General American Tank Car Co., and 500 55-ton steel gondolas to Illinois Car & Mfg. Co.

Denver & Rio Grande Western, 700 cars divided as follows: 500 gondolas to Pressed Steel Car Co. and 200 automobile box to Mt. Vernon Car Mfg. Co.

Missouri Pacific, 3000 freight cars, awarded as follows: 1000 box, 250 hopper and 250 furniture to the American Car & Foundry Co.; 500 box to the General American Car Co.; 500 box and 250 automobile to the Standard Tank Car Co.; and 250 stock to Pennsylvania Tank Car Co.

Pennsylvania, 500 hopper car repairs, to Standard Tank Car Co. This is in addition to 6000 car repairs recently placed.

ORDERS PENDING

Chicago, Milwaukee & St. Paul, 2 flat cars and 12 passenger car underframes; bids asked.

International Railways of Central America, ten tank cars; bids asked.

Delaware, Lackawanna & Western, 129 cars, comprising 35 steel express cars, 40 steel milk cars, two dining cars, 50 ballast cars and two postal cars; pending.

Wabash, 2000 automobile box and 20 baggage cars; pending.

Long Island, 20 suburban coaches; pending.

Lehigh Valley, 1000 cars, 500 hoppers and 500 automobile cars; pending.

All-Metal Lighting Fixture Co., New York, has increased its capitalization from $40,000 to $60,000.

Wire

Stocks So Low Normal Demand Will Cause Shortage—Prices Are at Much Firmer Levels

STOCKS of wire, nails and wire products in hands of jobbers and dealers are so low, following conservative buying that the usual spring demand is expected to bring a flood of business to mills. Prices have firmed and shading is much less evident. Inquiry for fencing is appearing but will be much larger after Jan. 1. Mill operations are unchanged.

WIRE PRICES, PAGE 1290

Chicago, Nov. 17.—Dealers' and jobbers' stocks of wire nails are so low that anything approaching normal demand for spring trade will create a shortage, it is believed. Mill stocks of nails and other common products are as low as they have been in 18 months. November business in wire and wire products continues seasonally good. Shading under 2.55c, Chicago or western mill, for plain wire and 2.70c for wire nails is said to have disappeared and the price tendency is upward.

Boston, Nov. 17.—Nails are in strong demand at Boston with sales for the year less than 75 per cent of 1924 sales for the same period. Wire is moderately active with price unchanged at 2.65c Worcester.

Pittsburgh, Nov. 17.—Occasional orders for mixed carloads of wire products or mixed carloads of nails are being received, and a number of 60-day contracts have been renewed. Some inquiry is coming for fencing but this will be much larger after the first of the year. Extensive mixed carload business is being held in reserve until after inventory. Prices on wire and wire nails are unchanged at 2.50c to 2.65c, respectively, and more manufacturers are joining those who are quoting a 1.85c minimum on cement-coated nails. Wire mill operation is between 55 and 60 per cent.

New York, Nov. 17.—Wire and nail demand has increased, supporting operations of various mills over 60 per cent of capacity. Some mills now are oversold. Prices are firm at 2.50c, Pittsburgh, on plain wire and 2.65c for nails.

Fluorspar Is Active

New York, Nov. 17.—Reports show an active business in foreign fluorspar, including several lots of 500 to 1000 tons. Prices vary, $16.50 to $17.50, duty paid, tidewater, per net ton, having been done recently. As a matter of fact good sized tonnages have brought $17.50.

Nonferrous Metals

Easier Tone Is Noted in Markets—Sharp Drop in Zinc Puzzles—Copper Less Active and Tin Lower

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Spot Straits Tin, N. Y.	Lead New York	Lead East St. Louis	Zinc St. Louis	98-99% Aluminum	Spot Antimony	Ingot Nickel
	Cents per pound									
Nov. 11	14.75	14.87½	14.00	62.50	10.00	9.75	8.80	28.00	20.00	34.00
Nov. 12	14.75	14.87½	14.00	64.12½	9.97½	9.62½	8.60	28.00	19.75	34.00
Nov. 13	14.75	14.87½	14.00	64.62½	9.92½	9.62½	8.50	28.00	19.50	34.00
Nov. 16	14.75	14.87½	14.00	63.87½	9.85	9.75	8.50	28.00	20.00	34.00
Nov. 17	14.68¾	14.83¾	13.97½	63.75	9.82½	9.60	8.45	28.00	19.62½	34.00

NEW YORK, Nov. 17.—Prices of nonferrous metals have read much like the football scores in the past week; some were high and others proved to be unusual upsets of the dope. Buying was rather light in most of the pig and ingot metals, after recent great activity, but continued active in products. The outlook in steel and other domestic business factors is favorable to metals but the European situation continues to drag and does not indicate more than ordinary exports from this country.

Zinc—This metal was one on which the "dope" was upset badly. In the face of about the strongest statistical position ever reported by the American Zinc institute, prices fell about ½ cent to 8.45c E. St. Louis for prime western for shipment this month. All interests appeared puzzled and a number of explanations were heard, such as: Natural reaction in quiet market following too great a rise, deliberate readjustment of prices not good for the trade, selling by second hands in a slow market, cutting to hold ore price in check. Smelters anxious for future sales especially with London low. At any rate the market became firmer Monday despite continued easiness abroad, as offerings were extremely light for this year and a little more inquiry appeared. Forward positions are about 5 points down for each month, and brass special 15 to 25 points over prime western.

Copper—Buying of copper has been quiet the past few days, especially for export, but as producers are well booked for this year and the domestic outlook continues good they have been reluctant to follow London easiness. Yet the slack European business situation prevents copper from having the sustained strength of other metals, the latter being less dependent on exports. Rolling mills and foundries are in the best situation they have had since early this year. Output of copper is a little larger and stocks have increased slightly in the past month, after several months of the opposite tendency but statistically the market still is strong. All depends upon how Europe buys in the next few weeks.

Tin—The plating metal has gone up by big leaps again, and as is natural it then often swings widely from day to day as prices are so high as to be extremely sensitive, especially as profits in tin production are said to be the highest in years. Supplies have been extremely tight but now are a little less so but with spot strongly held here. It is thought that independent tin mills need to buy heavily of futures for first quarter needs.

Aluminum—Business continues good and prices are strong but unchanged.

D. J. Ryan Foundry Co., Ecorse, Mich., has changed its capitalization from $2,000,000 to 20,000 shares of no par value.

Mill Products

Base prices cents per pound, f.o.b. mill

SHEETS	
High brass	19.62½
Copper, hot rolled	23.25
Zinc, ga. 9 to 17	12.00
Lead full sheets (cut ¼c more)	13.50 to 14.00
Aluminum, bright flat, up to 10 gage	37.50
SEAMLESS TUBES	
High brass	24.25
Copper	25.25
RODS	
High brass (round ⅝ to 2½-inch)	17.37½
Naval brass	20.12½
WIRE	
Copper	16.62½ to 16.87½
High brass	20.00

Old Metals

Dealers' buying prices, cents per pound

HEAVY RED BRASS	
New York	9.00 to 9.25
Chicago	9.75
Cleveland	9.25 to 9.50
HEAVY YELLOW BRASS	
New York	7.00 to 7.50
Chicago	8.50
Cleveland	7.50 to 7.75
ZINC	
New York	5.25 to 5.50
Cleveland	4.75 to 5.00
HEAVY COPPER AND WIRE	
New York	11.75 to 12.00
Chicago	12.00
Cleveland	11.50 to 11.75
RED BRASS BORINGS	
New York	8.25 to 8.50
Cleveland	8.75 to 9.00
YELLOW BRASS TUBING	
Cleveland	7.50 to 7.75
LIGHT COPPER	
New York	9.75 to 10.00
Chicago	10.75
Cleveland	9.50 to 9.75
LIGHT BRASS	
Chicago	7.50 to 8.00
Cleveland	6.25 to 6.50
ALUMINUM	
Borings, Cleveland	15.00 to 15.50
Old sheet and cast, Cleveland	19.00 to 20.00
Clippings, Cleveland	22.00 to 22.50

Secondary Metals

Remelt aluminum No. 12	25.00 to 25.50
Brass ingot 85-5-5-5	12.25 to 12.50

Coke By-Products

Distillates In Strong Market—Sulphate Prices Easier

New York, Nov. 17.—Stimulated by a further increase in toluol, the market for 90 per cent benzol has advanced 1 cent, to a parity with pure benzol. This perhaps is the first time the two grades have been on the same level. They now are 24 cents a gallon in tanks, and 29 cents in drums. Toluol is strong as a result of a heavy excess of demand over production, and is 30 cents a gallon in tanks and 25 cents a gallon in drums. A further advance is likely.

Sulphate of ammonia is slightly easier, now $2.80 to $2.85 delivered for material for domestic account and $2.70, port, for material in double bags for export. Phenol is steady at 22 cents, works, with trading features and spot naphthalene, at 5½ to 6½ cents for flakes and 6½ to 7½ cents for balls.

Solvent naptha is quoted at 28 cents works, in tanks and 23 cents in drums, and xylol at 29 cents in tanks and 34 cents in drums.

Coke Oven By-Products

Per Gallon at Producers' Plants in Tank Lots

	Spot	Contract
Pure benzol	$0.24	.....
Toluol	0.30	.....
Solvent naphtha	0.28	(nominal)
Commercial xylol	0.29	(nominal)
Phenol	0.22	0.22
Per Pound at Producers' Plants		
Naphthalene flakes	0.05½ to 0.06½	0.06 to 0.07
Naphthalene balls	0.06½ to 0.07½	0.07 to 0.08
Per 100 Pounds Delivered		
Sulphae of ammonia	$2.82½	.....

Imports Mostly Pig Iron

Philadelphia, Nov. 17.—Following are the importations of iron and steel at this port during the week ended Nov. 14: 100 tons pig iron, Sweden; 1700 tons pig iron, Wales; 1250 tons pig iron, Germany; 1250 tons pig iron, Calcutta; 1000 tons chrome ore Portugese Africa; 10 tons manganese ore, Germany; 1 ton structural steel, Belgium; 503 tons iron ore, Germany.

Coast Prices Are Firmer

Pig Iron Only Product Advanced—Current Sales Small but Much Business Pending

BY AIR MAIL

SAN FRANCISCO, Calif., Nov. 16.—Coast markets for iron and steel products have been quiet and with few exceptions sales are unimportant. Although higher prices are reported in eastern markets, advances have not been made here except in pig iron. Prices are notably firmer, however.

Oakland has voted bonds for $9,960,000 for harbor development which will call for considerable equipment in trackage and warehouse material. In Los Angeles to Nov. 9 permits issued numbered 1141 with an estimated value of $2,893,046, compared with 1295 permits and a valuation of $4,071,722 for the period in October.

Pig Iron and Coke

Foundry operations continue on a somewhat limited scale with the result that buying of pig iron and coke is confined to small spot lots. Prices on Belgian, German and English iron have been advanced 50 cents to $1 a ton and are quoted now as follows:

Coast Pig Iron Prices

Utah basic	$27.00 to 28.00
Utah foundry	27.00 to 28.00
No. 2 Columbia, Los Angeles	27.00 to 28.00
No. 2 Columbia, Portland	27.50 to 28.50
No. 2 Columbia, Seattle	27.50 to 28.50
Columbia basic delivered	27.00 to 28.00
*Dutch	24.50 to 25.00
*Indian iron	24.00
*Belgian	25.00 to 25.50
*English (2.75-3.75 sil.)	26.50 to 27.00
*German	25.50 to 26.00

*C.i.f. duty paid.

Utah foundry and basic irons are firmer but no price changes are noted. Prices applying on this grade are f.o.b. cars San Francisco. Coke remains unchanged.

Bars, Plates and Shapes

Concrete bar awards aggregate 650 tons and include 450 for the Royal Hawaiian hotel in Honolulu awarded to the Honolulu Iron Works who in turn will buy most of it from the United States Steel Products Co., 110 tons for the Bank of Italy building in San Jose, Calif., to a San Francisco bar jobber and 100 tons for the Y. W. C. A. in San Jose, Calif., placed with the W. S. Wetenhall Co. A warehouse for John A. Roeblings' Sons Co. in San Francisco, calling for about 600 tons has been indefinitely postponed. Prices are becoming firmer and 2.95c f.o.b. cars San Francisco appears to be general on lots of 250 tons or more with 3.10c and 3.40c applying on carload and less than carload lots respectively. Demand for merchant material has not improved and local mill operators are quoting 2.40c to 2.50c f.o.b. cars while eastern producers are quoting 2.35c c.i.f. as a minimum.

On plates, 2.25c to 2.30c c.i.f. continues to be quoted. While pending business exceeds 9000 tons only one award was reported for the week. This involved 150 tons of boiler plates and 250 tons of boiler tubes for a number of large boilers for a steam power plant for Los Angeles taken by the Llewellyn Iron Works. New inquiries included 300 tons for a pipe line in Los Angeles and 600 tons for a pipe line in Everett, Wash., bids on which will be opened December 1.

Awards of structural shapes this week included only small lots of less than 100 tons, making one of the quietest weeks of the year. Pending business is heavy and over 12,000 tons is up. The quotation continues 2.30c to 2.35c c.i.f.

Other Finished Material

The Southern Pacific Co. has taken no action on its inquiry for 1200 tons of round track spikes, 1,500,000 tie plates, 3700 kegs of track bolts and 29,000 kegs of track spikes.

Cast iron pipe business pending calls for over 1900 tons. The only award of the week involved 167 tons of de Lavaud 10-inch pipe and 51 tons of 6-inch pre-caulked McWane pipe for Paso Robles. Prices continue around $50 a ton delivered.

Northwest Marks Time

SEATTLE, Nov. 12.—The present volume of trade in iron and steel products is not heavy but there is a fair turnover with several large contracts pending involving shapes and plates. In the meantime purchasing is confined to small tonnages and little improvement is expected during inventory time.

Pig Iron and Coke

With foundries operating not more than three days a week on the average there is little interest in this market. Most plants are well stocked and first quarter buying has not started. Columbia iron from Utah has been cut 50 cents this week, making the new price $20.50 base but even this price hardly places the domestic product on a competitive basis with imported iron. Good foreign iron can be bought at $24 delivered plant here.

Coke interests are competing for business but there is only a small turnover at present. A dealer who found himself overstocked with German coke is reported to have sold at between $11 and $12. Two hundred tons of Tyneside are said to have been sold here at $13.50, which is 50 cents under the previous level. These transactions have temporarily weakened the market.

Bars, Plates and Shapes

Competition of German and Belgian steel appears more pronounced, quotations of 1.80c for bars and shapes being reported. The local mill price remains 2.35c. While domestic steel is not on a strictly competitive basis, it is holding its own at higher prices due to better delivery and service.

Several concrete jobs, calling for three or four hundred tons of steel, are to be awarded by the state highway officials Dec. 1. About 108 tons of reinforcing steel are involved in a reservoir lining job, bids for which are under consideration by Seattle officials. The Pacific Coast Steel Co. has the contract for about 600 tons of reinforcing for the new Skinner building, Seattle.

Plates and shapes are holding firm at 2.25c and 2.30c respectively and the tone of the market seems stronger. Mill representatives expect prices to advance shortly. Plate jobs pending include about 380 tons for the city of Auburn, bids opened Nov. 14. Bend, Ore., is in the market for about 1000 tons of plates for a water pipe job, specifications not yet being issued. Everett, Wash., will open bids Dec. 1 for a water pipe job.

Bids are to be opened this week for 500 tons of structural steel for the Skinner building, Seattle. The Vantage Ferry bridge, involving between 1000 and 1500 tons, bids to be opened by the state Dec. 1, is the largest project pending at present. Lindstrom & Feigenson, Portland, have the contract for approaches to the Burnside street bridge, Portland, on a bid of $93,976. Seattle city planning commission is proposing an additional steel span across Lake Union, the preliminary survey fixing the cost at $3,500,000.

Old Materials

Steel scrap remains unchanged at $10.50 to $11 per gross ton, receipts being equal to the requirements of the main buying interest. Japanese are still scouring the market for cheap scrap for export but are operating on a close margin. No. 1 cast iron scrap is weaker, quotations for A-No. 1 cupola size being $15.50 to $16, net ton. There is little demand owing to foundry inactivity and competition of cheaper grades of pig iron.

The United States Steel Corp. has presented a site in Gary, Ind., for a downtown Salvation Army building and has contributed $40,000 toward an addition to the Christ Episcopal church, Gary.

Britain Shipping Coke to U. S.

Ten Steamers Engaged To Bring in Fuel—German Mills Sell 15,000 Tons of Pipe to South Africa; 6000 to South America—Japan Buying More Sheets—British Iron and Steel Output Increased

European Headquarters,
IRON TRADE REVIEW,
2-3 Caxton House, Westminster, S. W.1

LONDON, Nov. 17.—(*By Cable*)—Ten steamers have been engaged to carry coke to the United States from British ovens, as a consequence of the extraordinary rise in price in the American market. These will average about 5000 tons each. A sale of 3000 tons of hematite for delivery to the United States also is noted.

Continued improvement is the keynote of the pig iron market in Great Britain. Stocks are disappearing, forward buying is more active and prices are firmer. Some inquiries for pig iron have been received by furnaces at Barrow from the Continent.

British steel prices show further weakness, checking continental competition. Railroads are ordering considerable rolling stock. Orders for sheets for delivery to Japan, and for galvanized sheets to Palestine are especially attractive.

Larger sales by German interests are reported this week, among them being 15,000 tons of pipe by the Thyssen Works for delivery to South Africa; 6000 tons of pipe by the Mannesmann Co. to the Argentine; and 1000 tons of grooved rails by the Phoenix Works to Japan.

Reports from France speak of strong home and export markets. The Belgian market appears to be dull.

The current statement of British pig iron production reports an output of 473,700 tons for October, compared with 448,700 tons in September, and a monthly average of 619,900 tons in 1924. The number of stacks in operation Oct. 31 was 136, the same as at the close of August.

British steel production in October totaled 647,100 tons, against 640,100 tons in September, and a monthly average of 677,600 tons in 1924.

Exports of British iron and steel products increased to 368,823 tons in October from 273,200 tons in September. Imports in October were to 218,250 tons, compared with 194,000 tons in September.

British Steel Gain Shown In Greater Activity

Office of IRON TRADE REVIEW,
Prince's Chambers, Corporation St.

Birmingham, Eng., Nov. 6—(*European Staff Service*)—The best evidence of the improved iron and steel position is the starting of additional blast furnaces, and the preparations to bring into operation further plans, including steelworks. A peculiar feature of the recovery is that prices

Sterling $4.85

are practically unaffected and in steel they are somewhat easier. A severe test has been imposed by the depreciation of the franc, which has brought still lower continental prices.

English joists are quoted £7 7s 6d ($35.76) delivered, against £5 ($24.25) f.o.b., or £6 5s ($30.31) delivered for Belgian joists, having a tensile test of 28 to 32 tons or 1s ($0.24) less if untested. English billets continue at £6 5s ($30.31) against £5 7s 6d ($26.06) delivered from Belgium. It is commonly said that the prices at which steel is be-

(*Concluded on Page* 1312)

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, November 16	*British* Gross Tons U. K. Ports		*French* Metric Tons Channel Ports		*Belgium and Luxemburg* Metric Tons Channel Ports		*German* Metric Tons Rotterdam or North Sea Port	
Export Prices f. o. b. Ship at Port of Dispatch—By Cable								
PIG IRON	£ s d		Francs		Francs		£ s d	
Foundry No. 3, Silicon 2.50-3.00	$16.01	3 6 0*	$14.47	360	$14.53	320	$16.98	3 10 0
Basic	15.76	3 5 0	14.47	360	14.76	325	15.04	3 2 0
Basic-bessemer	18.67	3 17 0†	14.47	360	14.53	320	16.98	3 10 0
Hematite Phosphorus 0.02-0.05	17.95	3 14 0	19.50	485	.....	...	19.40	4 0 0
SEMIFINISHED STEEL								
Billets	$26.68	5 10 0	$20.70	515	$21.11	465	$26.68	5 10 0
Wire rods	44.86	9 5 0	27.14	675	27.69	610	29.10	6 0 0
FINISHED STEEL								
Standard rails	$35.16	7 5 0	$25.73	640	$26.33	580	$31.53	6 10 0
Merchant bars	1.57c	7 5 0	1.13c	625	1.15c	560	1.18c	5 7 0
Structural shapes	1.38c	6 7 6	1.04c	580	1.07c	520	1.17c	5 6 0
Plates, ship, bridge and tank	1.54c	7 2 6	1.22c	680	1.26c	610	1.38c	6 5 0
Sheets, black, 24 gage	2.22c	10 5 0	2.23c	1,240	2.29c	1,110	1.64c	12 0 0
Sheets, galvanized, 24 gage, corrugated	3.60c	16 12 6	3.11c	1,725	4.58c	2,225	3.69c	16 15 0
Bands and strips	2.22c	10 5 0	1.44c	800	1.48c	720	1.63c	7 8 0
Plain wire, base	2.38c	11 0 0	1.64c	910	1.65c	800	1.60c	7 5 0
Galvanized wire, base	3.03c	14 0 0	2.16c	1,200	2.27c	1,100	1.98c	9 0 0
Wire nails, base	3.14c	14 10 0	1.80c	1,000	1.76c	855	2.20c	10 0 0
Tin plate, base box 108 pounds	$ 4.85	1 0 0	.....	...	.....	...	$ 6.55	1 7 0
Domestic Prices at Works or Furnace—Last Reported								Renten Marks
Foundry No. 3 Pig Iron, Silicon 2.50-3.00	$16.13	3 6 6	$13.87	345(2)	$14.98	330	$19.55	85
Basic pig iron	15.76	3 5 0	13.87	345(1)	14.53	320	20.24	88
Furnace coke	2.91	0 12 0	5.75	143	5.68	125	5.52	24
Billets	26.68	5 10 0	17.69	440	21.57	475	27.37	119
Standard rails	1.73c	8 0 0	1.00c	525	1.18c	575	1.48c	142
Merchant bars	1.62c	7 10 0	1.00c	530	1.22c	585	1.36c	130
Shapes	1.49c	6 17 6	1.00c	520	1.16c	565	1.38c	132
Plates, ship, bridge and tank	1.60c	7 7 6	1.24c	650	1.39c	675	1.50c	144
Sheets, black, 24 gage	2.27c	10 10 0	2.12c	1,180	2.27c	1,100	2.35c	225
Sheets, galvanized, 24 gage, corrugated	3.60c	16 12 6	3.06c	1,700	4.64c	2,250	3.65c	350
Plain wire	2.38c	11 0 0	1.71c	950	1.75c	850	1.56c	150
Bands and Strips	2.22c	10 5 0	1.25c	695	1.49c	725	1.64c	157

*Middlesbrough; †Scotch foundry iron; (1) Basic-bessemer; (2) Longwy. British export furnace coke £0 12s 6d ($3.03) f. o. b. Ferromanganese £15 5s 0d ($73.96) f. o. b German ferromanganese £15 0s 0d ($72.75) f. o. b.

The equivalent prices in American currency are in dollars per ton for pig iron, coke, semi-finished steel and rails; finished steel is quoted in cents per pound and tin plate in dollars per box. British quotations are for basic open-hearth steel; French, Belgian, Luxemburg and German are for basic bessemer steel.

Machinery

Manufacturers Well Booked Several Months Ahead—Further Price Advances Are Impending—February, March Delivery Quoted

MANUFACTURERS of machine tools are enjoying good business and are comfortably booked for several months to come. Orders in themselves are small but aggregate a good volume. In numerous instances, higher prices have gone into effect, these increases being claimed as necessary because of rising costs in iron, steel, supplies and labor. Naming of February and March delivery is becoming more common. The inability of manufacturers to supply equipment for immediate needs is stimulating business for dealers in used tools. Norfolk & Western railroad last week purchased a small amount of equipment against the large list issued recently and further buying is expected to follow. Several other railroads are inquiring for small lots.

New York, Nov. 17.—Machine tool buying is well sustained, with a promising outlook. Three sizable lists are likely to close soon. The Florida East Coast, through Battie & Kipp, Chicago, will soon award a number of machine tools for its Miller shops, East St. Augustine, Fla. Coach shop equipment likely will be placed first. Norfolk & Western has placed a few tools against its large list. The next few days probably will see additional machinery placed. Brooklyn Manhattan Transit Co. is an active buyer for its De Kalb avenue shop, it being understood that most of the list of 30 or 40 machines will be placed with a local dealer. American-La France Fire Engine Co., Bloomfield, N. J., closed on a 16-inch geared-head lathe and a 6-inch thread miller. International Motor Co. purchased a 16-inch geared-head lathe for its New Brunswick, N. J., plant. Both orders went to Pratt & Whitney Mfg. Co., which also has closed on six worm grinders for Hannum Mfg. Co., Milwaukee.

Boston, Nov. 17.—While New England machine tool sales improved the past week, the total is below the average of the country's total tool sales. Massachusetts sales have been lagging since early October. Connecticut sales show a marked improvement during November, and are now at a good high level. Recent sales in this district include a 30-inch planer to a Cambridge, Mass., machine shop; two centerless grinders and other equipment for Providence, R. I., rubber manufacturers, a multiple spindle drill for a Springfield, Mass., manufacturer, and three presses taken by a Worcester, Mass., pressed metal plant. Inquiry includes a recent list from the Boston & Maine railroad, a special lathe for the Boston & Albany, and four or five tools for the textile industry. Deliveries on new tools frequently run well into next year, one manufacturer being forced to content himself with used equipment. One grinding manufacturer is quoting only for March delivery. Prices are firm with frequent rumors of advances.

Pittsburgh, Nov. 17.—Activity in machine tools seems to exceed that of October. R. D. Nuttall Co. has started to buy against the list reported in IRON TRADE REVIEW last week, two heavy duty drills going to Brown & Zortman Machinery Co. and a horizontal boring mill to Motch & Merryweather Machinery Co. This buyer also is buying several other tools, including grinder, lathe and molding machine. Union Switch & Signal Co. placed two 3-foot radial drills with the Brown & Zortman company, which also sold Westinghouse Electric & Mfg. Co. ten presses for its Springfield works. Latrobe Electric Steel Co. is in a buying mood and Youngstown Sheet & Tube Co. has revised five machines on its large inquiry of last summer. Pennsylvania railroad is receiving bids on two milling machines and quotations on many other items. National Tube Co. also is in the market for a milling machine and the Midland, Pa., board of education is preparing a list of machines for a trade school. A large number of small inquiries are being received from manufacturers. Typical sales made by William K. Stamets Co. this past week are: Two bending machines, combination punch and shear, spline milling machine, beam shear and billet shear. Crane orders are few with new inquiries from Carnegie Steel Co. for three or more cranes for Homestead.

Cleveland, Nov. 17. — Equipment sales in this territory continue in good volume although they are below those of a month ago. Buying goes on steadily and comes from diversified lines of industry, but all orders are for small lots. Locally there is little demand of unusual importance, but around Detroit buying by automobile manufacturers goes steadily forward. So long as the demand for automobiles continues at a high rate, it is expected that the industry will be a good buyer of equipment. Eaton Axle & Spring Co., Cleveland, has purchased a few machines during the last week but insofar as possible it is satisfying its needs with used equipment. Local manufacturers of turret lathes and automatics report a good volume of orders, with the total well up to that of last month. As deferred shipments are given on some types of new machines, used models are moving at a better rate.

Chicago, Nov. 17.—Deferred deliveries are hampering machinery sales. On some lines of drilling and milling machines February is the best delivery promised. One line of manufacturing drill prices has been advanced 7 per cent. November business will average well up to previous months, consisting largely of a steady flow of moderate-sized orders. Union Pacific is inquiring for a 32-inch shaper. International Harvester Co. still has some equipment to place.

CRANE ORDERS PLACED

Three 12-ton crawler cranes for Koppers Construction Co., to Industrial Works.

Two 15-ton locomotive cranes for Gulf Creosoting Co., Mobile, Ala., to American Hoist & Derrick Co.

Single awards include: 20-ton used Milwaukee crane for Standard Seamless Tube Co., Economy, Pa., bought from Philadelphia Roll & Machine Co., Philadelphia, through T. B. MacCabe, Philadelphia, agent; 20-ton crane for International Railways of Central America, Guatemala, C. A., figured on by American builders, to German interest; 7½-ton electric crane for New York Rapid Transit Co., to Maris Bros.; 5-ton crane for Latrobe Electric Steel Co., Latrobe, Pa., to Euclid Crane & Hoist Co.; 3-ton handpower crane for Gulf Refining Co., Bayonne, N. J., to Alfred Box & Co.; 10-ton electric crane for General Electric Co., Schenectady, N. Y., plant, to Niles-Bement-Pond Co.

CRANE ORDERS PENDING

Several cranes for Carnegie Steel Co., Homestead, Pa., plant; bids being taken.

20-ton locomotive crane, 50-foot beam, for Michael Gilinsky, 118 Decatur street, Trenton, N. J.

To Dismantle Stack

Pittsburgh, Nov. 17.—Work of dismantling Edith blast furnace, Northside, will commence shortly in harmony with the Carnegie Steel Co.'s policy of razing obsolete and high cost stacks. This furnace, which has been idle for a number of years, was operated by the Carnegie company under lease from the American Steel & Wire Co. This is the fifth furnace of the Carnegie company to be abandoned in the past year, the others being Zanesville, two Columbus, O., and one Niles. With Edith gone, the Carnegie list of furnaces will be reduced to 54. It is believed two other furnaces never again will be operated, one at Steubenville, O., and the other at Sharon, Pa.

Lufkin Rule Co., Saginaw, Mich., has increased its capitalization to $2,000,000 in common stock and $500,000 in preferred.

Bethlehem Hearing

Adjourned to Nov. 23—Steel Buyers Give Testimony at Baltimore

Washington, Nov. 17.—Hearings in the case of the federal trade commission against the Bethlehem Steel Corp., involving charges of restraint of competition in the acquisition by that company of the Lackawanna Steel Co., in 1922, and Midvale Steel & Ordnance Co. and the Cambria Steel Co., in March, 1923, have been adjourned at Baltimore until Monday, Nov. 23. The trade commission has been submitting testimony before Examiner George W. McCorkle at Baltimore for several days.

When hearings are resumed at Baltimore testimony will be received from railroad purchasers of steel. The hearings likely will be continued in Pittsburgh later.

Among the witnesses called in Baltimore in the last several days was John W. Fritz, purchasing agent for the Curtis Bay Copper & Iron Works, Baltimore; Sumner A. Parker, Armstrong & Parker, fabricators of steel and ornamental iron work, Baltimore; Charles S. Dell, president, John J. Greer & Co., Inc., Baltimore, and Frank S. Chevannes, of the Chesapeake Iron Works.

Mr. Fritz testified that the Curtis Bay Copper & Iron Works, which is a manufacturer of nonferrous alloys and specialties, had been engaged in structural steel fabricating and tank building for several years, withdrawing from this field in the latter part of 1923. In the purchases of structural steel from Bethlehem he told of special prices being quoted on "Bethlehem sections" when certain tonnages of standard sections were included in the purchases. He said prices and delivery service were factors in causing his concern to give preference in its steel needs to certain producers. He said the Bethlehem company had offered some competition in structural business in the Baltimore district.

B. B. Bane, attorney for the trade commission, sought to show through testimony of Mr. Fritz that the Lackawanna and Cambria companies were less active in quoting on business in Baltimore territory after the Bethlehem acquisitions.

Mr. Parker stated that his firm bought shapes largely from Bethlehem in the last two or three years rather than from the Carnegie Steel Co., because the latter company had been less active in soliciting business in Baltimore territory. He also said that generally, Bethlehem has quoted lower prices on standard shapes. Mr. Dell testified to purchases made by his concern before and since the Bethlehem acquisitions.

Mr. Chavannes, who is president and treasurer of the Chesapeake Iron Works, structural fabricator and manufacturer of traveling cranes, testified that under normal conditions his concern has bought about 5000 tons of shapes; about 700 tons of universal and sheared plates, and about 300 tons of soft steel bars yearly, besides machine bolts and nuts. Since the Bethlehem acquisitions, he said, Cambria had solicited less business on shapes with his company, but he stated on cross examination that for the last 15 years the purchases of shapes, as well as plates and bars, made by his company from the Cambria mill had been small, and that purchases had been largely from the Bethlehem company.

He said that in his opinion the smaller fabricator had much better opportunity to exist when prices are more stabilized and uniform.

New Extras Adopted For Cold-Finished Steel

Under a new card of extras on cold-finished steel issued by producers as of Nov. 12, a number of important changes involving advances of $1 to $3 per ton have become effective. The advances relate principally to rounds as hexagons and flats remain unchanged. On rounds, 13/16 to 1 1/16-inch, the extra is raised from 30 to 35 cents; on 1⅛ to 1 3/16-inch, from 25 to 30 cents; on 1½ to 2 3/16-inch, from 15 to 25 cents; on 2¼ to 2⅞-inch, which formerly was the base size, to 15 cents; on 2 15/16 to 2⅜-inch, from 30 to 35 cents. New extras are provided for turned and polished steel of 25 cents on 1⅛ to 1 7/16-inch; of 15 cents on 1½ to 2 3/16-inch and of 10 cents on 2¼ to 2⅞-inch. Piston rod extra formerly 50 cents for all sizes becomes: ⅛ to 5/16-inch, $1.50; ⅜ to ¾-inch, $1; 1 3/16 to 2-inch, 50 cents. On anything larger than 2-inch, extras will be quoted on application.

The new extra for either bessemer or open-hearth scrap stock is 10 cents, passing on that recently inaugurated by makers of hot-rolled bars for screw stock purposes. While before no carbon extras were charged for carbon over 0.50, now carbon 0.51 to 0.75 carries an extra of $1 and on 0.76 to 1 per cent, $2. On long and short lengths, where formerly no extra was charged for cutting 5 to 24 feet, now for lengths 60 inches to 119 15/16 inches an extra of 30 cents is charged on flats and 20 cents on rounds, squares and hexagons. In extras for accuracy, instead of one extra for all sizes, these are graduated on material up to ⅝-inch. From that they are the same as formerly. No odd size extra now is charged on quantities of 20,000 pounds or more.

Makes Shipping Record

The Steubenville plant of the Wheeling Steel Corp., broke all records in October for shipments of steel. The plant is now operating at capacity.

Pig Iron Sales Shrink

(*Concluded from* Page 1292)

aggregate but with a large portion of first quarter business closed there has been a letdown. While some spot sales of northern iron have been made at $23.50, Chicago furnace, the base price of No. 2 foundry and malleable may be said to be $23. Some inquiries for high silicon iron, notably one for 1000 tons of 2.75 to 3.25 silicon, have not been satisfied. A Wisconsin melter has closed on 1000 tons of No. 2 foundry and malleable. A number of sales of 500 tons in Wisconsin, Western Illinois and Michigan for first quarter are reported. A sale of 8 per cent silvery iron has been made at $29.50, Jackson county base, but it is believed this level could be shaded. A car of low phosphorus iron has been sold at $31.20, delivered Chicago. Alabama iron is quoted $27.01, Chicago, and Tennessee barge iron at $25.18, Chicago.

St. Louis, Nov. 17.—A strengthening tendency is noted in the pig iron market. The melt has steadily increased since consumers' order books are sufficient to insure the present rate of operations for the next 60 days. The leading local producer reports sale of 7000 tons during the week for first quarter. Foundries generally are showing interest in future supplies. Stove plants and implement manufacturers are particularly active, and the past two weeks have developed betterment in business placed with the gray casting specialists. Northern iron is offered sparingly here, with $23, Chicago, the lowest figure mentioned. No. 2 southern is firm at $21 furnace, and one leading Alabama producer is asking $21.50. The St. Louis Coke & Iron Co. is asking $23.50, f.o.b. Granite City, against $23 to $23.50 a week or ten days ago.

Birmingham, Ala., Nov. 16.—Birmingham furnace interests have been selling so much pig iron that some of them virtually are out of the market. Quotations are $21 to $22, base, for first quarter, while small spot lots are $22.50. Production has been increased by the blowing in of two furnaces this month, one in Birmingham and one at Gadsden, and two others probably will be added by the end of the month.

The Highway Iron Products Co., Ligonier, Ind., has reduced its capital stock from $600,000 to $125,000.

Date Set for Industrial Protest

Members of 300 Trade Associations Invited To Attend Meeting Dec. 10 in Washington, Opposed to Government's Encroachment in Field of Private Enterprise—Effort Made To Interest Steel Leaders

WASHINGTON, Nov. 17.—Through the leaders of 300 trade associations and other organizations, a call has been issued for a meeting of representatives of hundreds of industries in Washington Dec. 10 to map out a campaign to challenge the right of the government to engage in business and industrial activities that are regarded as strictly in the field of private enterprise.

The invitations carry the names of the following members of the planning committee: Homer L. Ferguson, president, Newport News Ship Building Co., Newport News, Va.; F. Highlands Burns, Baltimore, president, Maryland Casualty Co.; J. E. Edgerton, president, National Association of Manufacturers, and Gen. R. C. Marshall Jr., general manager, Associated General Contractors of America, the latter being chairman of the committee.

Efforts are being made to get members of the iron and steel industry to speak at the meeting Dec. 10. A preliminary meeting, attended by representatives of more than a score of industries, including the iron and steel industry, was held here several weeks ago, as announced in the Nov. 5 issue of IRON TRADE REVIEW. Appointment of a planning committee to call the meeting and to suggest a program of action is the result of the preliminary meeting.

Charge Waste in Building

In addition to making strong objections against the principle of the "government in business," the meeting is expected to produce evidence of waste in construction of public works by government departments.

It is said the meeting, two days after congress convenes, will be the first of its kind ever held. It is seen as the start of a movement by many groups of industries against a practice in which the federal government is cited as being the leader, with states, counties, cities, and even the smallest municipalities taking part.

Sentiment has been taking form in the industrial world during the post war years against what is pointed out as a growing governmental participation in private business activities. Among the charges of this character that the meeting is expected to develop are the following:

1. Penetration of government bodies into business denotes almost invariably an effort by those in public office to perpetuate their tenure, magnify their functions or enlarge the field for political control and "spoils."
2. Lack of successful methods, efficient management and the driving force created by prospects of genuine industrial progress forces government production costs higher than those of private business organizations.
3. Government enterprises, usually launched under the pretext of saving money through elimination of private profit, almost invariably result in the wasting of public money, with the losses concealed by refusals to employ cost accounting systems that truly indicate expenses involved.
4. Extension of business activities in the realm of government is in exact accord with the dictates of the basic theories of communism.

Trumbull Steel Co. Will Name New Officials

Youngstown, O., Nov. 17.—Election of new directors to the Trumbull Steel Co. board will be made by the present board sometime this week. One of the three or four new directors will be Cyrus S. Eaton, Cleveland financier, who will be elected chairman of the board of directors. It is probable that a president will also be chosen at this meeting. Several high Youngstown Sheet & Tube Co. officials have been mentioned for this job. It is believed not unlikely that Elmer T. McCleary, assistant vice president of the Sheet & Tube company, will be elected.

The $13,000,000 6 per cent 15-year first mortgage issue of the Trumbull company has been speedily absorbed by the investment public, bankers report. The bonds were part of the refinancing plan worked out for the company. They were offered by the Bankers Trust Co., New York, by the Cleveland Trust Co., and by Otis & Co., Cleveland.

Another portion of the financing plan will be the offering of $5,000,000 of debentures, shortly. The debentures are to be retired with 25 per cent of net earnings, beginning next year. Underwriters have an option to purchase 100,000 shares of common, at a price to be determined by directors but stated by President Wick at $9 a share, until Jan. 1, 1928. Holders of debentures have option to purchase twenty shares of common stock for each $1,000 bond at $10 in 1926 and 2½ points higher each succeeding year for five years, when conversion price will be $20.

Russia Plans To Buy Much Steelworks Equipment

New York, Nov. 17.—Rumors are afloat here that extensive expenditures are to be made in this country shortly for the rejuvenation of the iron and steel industry in Russia. Several engineers connected with prominent American equipment building company recently have visited that country. Representatives of a leading iron and steel engineering firm sailed for Russia this week to investigate the condition of the coal, iron ore and steelworks properties in the Donetz region and estimate the cost of reconstruction, on behalf of certain American interests. It is reported that a Russian commission is to visit the United States shortly to execute plans for revising iron and steel production in Russia.

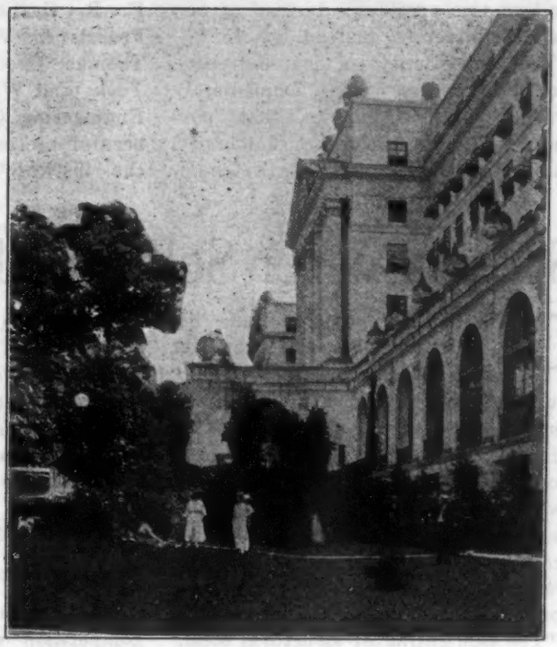
The Amtorg Trading Corp., 165 Broadway, New York, which has purchased enormous quantities of supplies and equipment of different kinds for Russian interests, including the Russian government, is expected to be prominently identified with the activities in connection with the plans for iron and steel development in Russia.

Plan Great Machinery Sales Building

A 21-story machinery mart across from the new Union station is being promoted at Chicago. Space is to be sold on a co-operative basis to machinery dealers. The estimated cost is $8,500,000 and the rentable floor space will be 800,000 square feet. Plans have been drawn by Graham, Anderson, Probst & White, 80 East Jackson boulevard, Chicago.

Ypsilanti Foundry Co., Ypsilanti, Mich., has changed its capitalization from $100,000 to 50,000 shares of no par value.

Fabricators Support Active Campaign for Steel



Better Salesmanship Demanded at Meeting

New Applications of Structural Steel Discussed

BEGINNING with the first rap of the gavel and continuing up to the last few minutes of the closing session, members of the American Institute of Steel Construction attending the annual meeting last week at White Sulphur Springs, W. Va., heard a tale of past achievement and were so impressed with the possibilities of future activities that at the end they voted unanimously to increase assessments to insure a working fund more than sufficient to carry the program of the institute forward for another year in high gear.

It was a fitting climax to a most successful meeting, in which the varied program was unfolded rapidly and smoothly, each event contributing to the enthusiasm which finally resulted in the significant vote of confidence in the institute's ability to rid the structural steel industry of many of its present ills. It indicated that the steel fabricators mean business in their campaign to promote the use of structural steel. It was an effective endorsement of its program of educational worfl, technical research, improved selling methods, higher standards of business, adoption of standard specifications and numerous other activities.

OVER 200 representatives of structural steel fabricators of the United States and Canada attended the convention. The two sessions on Wednesday were devoted to addresses by the officers of the institute and reports of the standing committees. On Thursday eight papers dealing with engineering problems were presented and the single session held on Friday was reserved for transacting business.

Too Many Laws Says Senator

One of the high lights of the meeting was the banquet held Thursday evening in the Greenbrier casino. President Kimbrough, who presided, introduced the Hon. George H. Moses, senator from New Hampshire, who spoke on "The Relation of the Government to Business." He attacked unnecessary laws and urged the unshackling of industry that it might progress without the interference of government regulation and excess taxation.

A varied entertainment program was provided, including cards and dancing every evening and a golf tournament on Saturday. About 50 ladies attended the convention this year.

Prior to the business session on Friday, H. A. Fitch, president, Kansas City Structural Steel Co., Kansas City, Kans., spoke on the future of the structural steel industry. He painted a bright picture, but warned that certain evils now threatening fabricators should be eliminated. His enthusiastic recital of the needs of the industry was followed by the report of the budget committee, headed by W. M. Wood, Mississippi Valley Structural Steel Co., Decatur, Ill., who recommended an indefinite assessment with 25 cents per ton as the maximum, the exact rate to be left to the action of the board of directors. This recommendation was adopted unanimously.

Base Estimates on Costs

R. T. Brooks, George A. Just Co., New York, spoke briefly on the work of the fabricators in the metropolitan district in making bids on a basis of costs. He declared users of structural steel reacted favorably to this stand by fabricators and admitted that for a long time they had wondered what was wrong with the industry.

By unanimous vote a few changes in the constitution and by-laws were authorized. Provision now is made

New Officers of A.I.S.C.

President
(Re-elected)
J. L. KIMBROUGH,
Indiana Bridge Co., Muncie, Ind.

First Vice President
W. M. WOOD,
Mississippi Valley Structural Steel Co. Decatur, Ill.

Second Vice President
C. EDWIN MICHAEL,
Virginia Bridge & Iron Co., Roanoke, Va.

Directors
(Elected to succeed themselves)
C. A. Schneider, General Iron Works Co., Cincinnati
A. J. Dyer, Nashville Bridge Co., Nashville, Tenn.
C. W. Russell, Russell Wheel & Foundry Co., Detroit
G. E. Klingelhofer, Pittsburgh Bridge & Iron Co., Pittsburgh
W. M. Wood, Mississippi Valley Structural Steel Co., Decatur, Ill.
(To fill unexpired term of E. S. Mattice)
N. W. Warren, Dominion Bridge Co., Ltd., Montreal, Can.
(One year term)
W. S. Mosher, Mosher Steel & Machinery Co., Dallas, Tex.
(Two year term)
R. Llewellyn, Llewellyn Iron Works, Los Angeles, Cal.
(Three years term)
C. Edwin Michael, Virginia Bridge & Iron Co., Roanoke, Va.

for the election of honorary members, for two vice presidents instead of one and 18 directors instead of 15.

The opportunity of naming honorary members was immediately grasped by electing to that post George F. Swain, Harvard university, Cambridge, Mass.; Milo S. Ketchum, University of Illinois, Urbana, Ill.; E. R. Graham, Graham, Anderson, Probst & White, Chicago; W. J. Thomas, Geo. B. Post & Sons, New York; and Wilbur J. Watson, Watson Engineering Co., Cleveland—all members of the committee which prepared the institute's standard specification on the design, fabrication and erection of structural steel.

A committee headed by H. A. Fitch recommended that the next meeting be held at the Greenbrier hotel, White Sulphur Springs, during the last week in October, 1926, this being adopted by the convention.

Stress Better Selling Methods in Opening Session

CONVENTION visitors have become so accustomed to consider welcoming addresses as mere courtesy affairs, that members of the institute were surprised when C. Edwin Michael, president, Virginia Bridge & Iron Co., Roanoke, Va., not only welcomed the institute to White Sulphur Springs in the approved manner, but also outlined a constructive program of action for the organization.

"The fabricating of structural steel," he said, "involves about 250 separate business organizations, with invested capital of about $200,000,000, operating 300 manufacturing units, employing on an average annually 26,000 wage earners and producing, according to the report of the United States department of commerce for 1924 about 2,384,000 tons of structural steel with an estimated value of $250,000,000."

After touching on the purposes of the American Institute of Steel Construction and describing its chief accomplishments to date, Mr. Michael urged the members to adopt resolutions to use at a certain date, the institute's standard specifications and coke of practice; appoint committees to co-operate with the American Institute of Architects, American Society of Civil Engineers, Associated General Contractors and other similar national organizations; and appoint educational and publicity committees to assist and direct in preparing and distributing literature, relating to structural steel.

Attacks Selling Methods

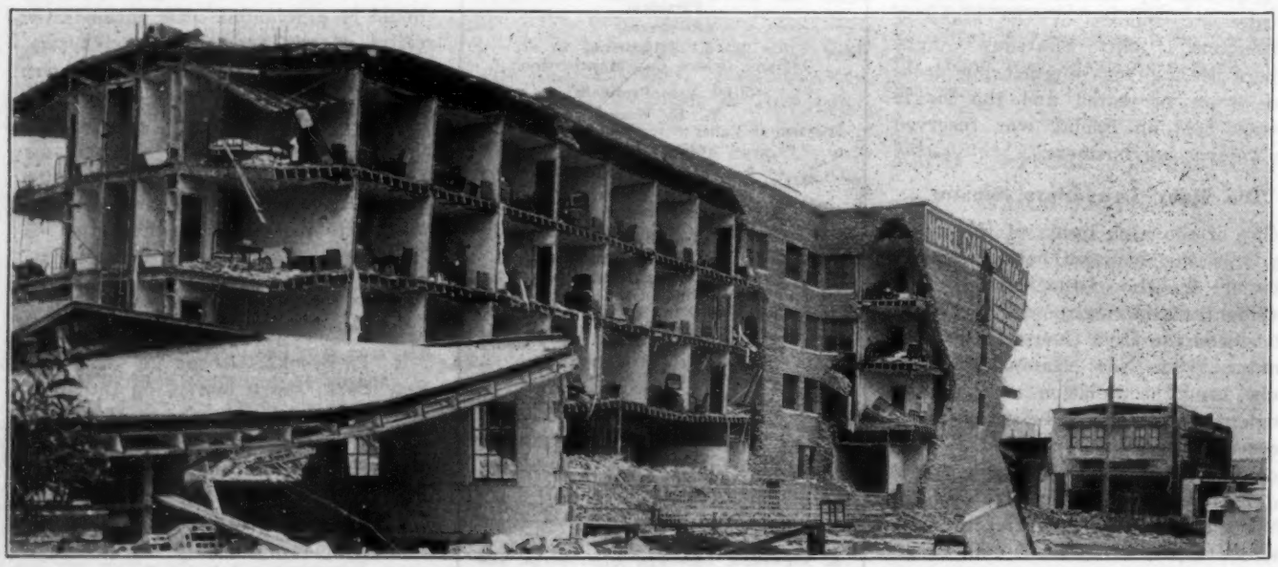
He went into the problem of unfair competition and read portions of a code prepared by a national trade organization dealing with proper procedure in handling bids. This included provisions that the figures of one competitor shall not be made known to another, that the contract should preferably be awarded to the lowest bidder if he is qualified to perform the contractor, and if not his bid should not be considered, and that in no case should the low bidder be led to believe that a lower bid than his had been received.

Mr. Michael plead for honest practice in competition, advocated an advertising campaign for structural steel and mentioned the superior performance of structural steel in the Japanese and Santa Barabara earthquakes. In conclusion he urged members of the institute to co-operate in making its present program effective.

In the annual address of the president, J. L. Kimbrough, Indiana Bridge Co., Muncie, Ind., spoke with convincing earnestness on the problems of the industry and of the work of the institute. He emphasized better selling methods, stating that there is no subject of greater importance.

"We are veritable barbarians in our methods," he said "disregarding moral, ethical and economic laws in our scramble for what would appear to be the last jobs of structural steel. I submit that when a representative of one of the country's strongest fabricating concerns sits outside a conference room while a competitor is closing a contract, and offers the owner, blindly, to take a job at $1000 less than the figure of any other fabricator, we have evidence of an unusual faith in the competency of our competitors, or evidence to substantiate all that I have said concerning selling methods within the industry."

"This industry has a wonderful future. The steel age is yet in its infancy. Until the establishment of the institute the steel construction in-



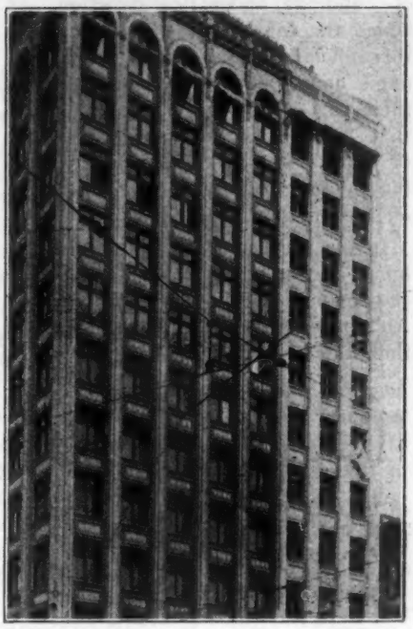
Much was heard of the behavior of building materials in earthquake zones and many illustrations of damaged buildings were shown. Structural steel withstands the shock

dustry grew as did Topsy, without mentor or guiding hand.

"When we contemplate the enormous tonnage of structural steel that now is being used in our cities to displace structures that were new 20 years ago and considered modern within a decade past and visualize this continuing and ever increasing market; when we think of the future of American industry and its dependence upon steel; when we view the certain displacement with steel of a rapidly diminishing supply of timber; it requires no wide stretch of imagination to prophesy that a present annual output of 3,000,000 tons will within a few years have grown to 6,000,000 tons."

Valuable advertising can be secured signs like that shown at left

Welding looms as a factor in structural steel fabricating. The addition to this 12-story building was welded



Reports Show Activities Are Gaining Results

REPORTS of the work of the institute during the past year and recommendations for future activities were made by several speakers at the Wednesday afternoon session. Karl E. Vogel, Omaha Steel Works, Omaha, Neb., chairman of the committee on improvement in selling methods, outlined a program including seven methods of approach to better sales procedure. He advocated the hiring of a sales counsellor who would advise members of the institute of effective methods and consult with their sales departments. Mr. Vogel also suggested that a sales manual be prepared under the direction of this counsellor. The manual would cover the fundamentals of salesmanship as applied to the peculiar conditions of the structural steel industry, and according to the committee's recommendations, would be supplemented by monthly bulletins containing current information on sales problems.

Mr. Vogel also suggested that courses in structural steel design be formulated and administered where they would prove most effective. He outlined a plan whereby resident engineers would be appointed by the institute to keep in contact with architects and engineers in each important fabricating center so that problems arising in each territory could be met promptly and competently. He also urged action whereby the code of ethics would be adhered to more closely. The report was adopted for consideration of the board of directors.

The report of the executive director, excerpts from which appear elsewhere in this issue, was presented by Charles F. Abbott, who spoke earnestly on the accomplishments of the past few years and emphasized the great need of erecting a superstructure on the sound foundation that has been built.

Mr. Abbott retold the history of structural steel and pointed to the fact that during prosperous periods scarcely any attention was devoted to the development of a market. "Competition found a fertile soil," he said. "Every bridge or building erected of competitive material has displaced a corresponding steel tonnage, thereby shrinking its market."

Business men now are swinging around to an appreciation of the importance of marketing, declared Mr. Abbott, who read abstracts from addresses of leaders of several industries to illustrate this point.

In commenting on the work of the institute during the past year Mr. Abbott referred to the growth of membership to 207 or about 98 per cent of the total plant capacity exclusive of the mills' interests. Forty-seven cities have adopted or are permitting the use of the institute's standard specifications. Publicity obtained for structural steel by the institute during the year represented a circulation of 30,000,000.

He touched on the possibility of creating new uses of steel, particularly in the construction of residences, farm buildings and garages. Co-operation with technical schools, improved selling methods, code of standard practice, traffic problems, technical research, need of statistics, and finance were some of the many subjects covered in the report.

Lee H. Miller, chief engineer of the institute, explained a number of engineering problems before the institute declared that the revised report on unit stresses of the building code committee of the department of commerce embraces 99 per cent of the institute's specification and recommended that the members of the institute ask this committee to go farther and incorporate the entire specification in the report.

One of the most instructive reports of the afternoon was that of the publicity committee, presented by its chairman, George E. J. Pistor, Hay Foundry & Iron Works, New York. After explaining the committee's method of promoting publicity during the past year and outlining its effectiveness, he exhibited a series of telegrams, letters and charts from a score or more trade organizatons showing how advertising had promoted sales. In practically every case, the experience of these organizations was that shortly after the advertising campaigns were put in force, sales began to mount. Among the groups whose representatives attributed increased volume of business to advertising were the common brick, face brick, paint and varnish, terra cotta, greeting cards, and quarry industries.

Mr. Pistor also showed photographs

of buildings under construction on which the fabricators gained publicity through large signs bearing their firm name and a suitable legend regarding their part of the work. It was stated that fabricators are losing thousands of dollars worth of valuable advertising by their failure to use such signs on the buildings they erect.

In the absence of T. S. Orner, Pittsburgh Bridge & Iron Co., Pittsburgh, chairman of the traffic committee, Mr. Abbott read his report which indicated that the committee has guarded the fabricated steel industry's interest in scores of rate cases in all part of the country.

Mr. Pistor reported for the committee on uniform method of cost accounting, outlining the difficulties involved in working out a system embracing the entire industry and suggesting that for the present efforts be confined to preparing a cost manual.

Aubrey Weymouth, Post & McCord, Inc., New York, presented the report of the committee on technical research of which he is chariman. He said:

"The practical functioning of the institute in this field would be the establishment of a research department under the direction of a committee. As the committee would be composed of institute members who would have little time for actual research work, their efforts would have to be confined to formulating problems the solution of which would have to be entrusted to other agencies under their direction.

"This, of course, suggests the utilization of the existing laboratories of those technical schools which are dedicated to research as well as to teaching."

Technical Papers Show Engineering Progress

BOTH morning and afternoon sessions on Thursday were devoted to addresses on engineering problems. In speaking on "The Fireproofing of Structural Steel," B. C. Collier, president, Cement-Gun Co., Allentown, Pa., explained the necessity of protecting steel against critical temperatures in case of fire and against corrosion and outlined the factors involved in selecting materials for fireproofing. He then described the method of mixing sand and cement in a nozzle and shooting the mixture onto the surface to be coated. Cement cannot be shot into forms by this method, but when shot against a solid surface and used in connection with reinforcing it is much stronger than concrete, has greater resistance to heat and water, and has great durability, according to the speaker.

Mr. Collier described tests made by several agencies, including the United States shipping board and the underwriters laboratories, showing the fire resisting qualities of this material. These tests showed that a few inches of material from a cement gun, when subjected to high temperatures retarded the heat effectively for several hours. Mr. Collier showed scores of illustrations of concrete repaired by means of the cement gun and of steel bridges, stacks and other structures coated with material from a cement gun to protect the metal from corrosion.

R. A. Storm, manager structural department, Morgan Engineering Co., Alliance, O., presented a paper on "Electric Arc Welding and Its Application to Structural Steel." This paper, which is presented on page 1270 of this issue, aroused considerable interest and prompted numerous questions as to technic of welding and assembling, cost of welds, methods of testing, etc.

Specific data on the subject of great importance to fabricators were presented by A. L. Spencer, Jr., Pittsburgh Screw & Bolt Co., Pittsburgh in a paper on the cause of rivet failures in driving. Mr. Spencer described a special testing device in which rivets could be driven under conditions similar to those obtaining in field work. Sheets of spring steel on the outer face of the device caused vibration when the rivet was being driven.

(*Concluded on Page* 1311)

Anecdote and Incident at the Greenbrier

ONE of the interesting exhibits in the meeting room was the display of Hugh Ferris pictures from "The Titan City," a pictorial pageant of New York—past, present and future—by Wanamaker's. The exhibit forecasts buildings of structural steel rising hundreds of stories and spanning dozens of city blocks.

* * *

ABOUT 150 newspaper publishers were conventioning at the Greenbrier while the steel fabricators were there. They discussed elimination of waste, abuse of free publicity and other problems not unknown in industry.

* * *

ONE misfortune hung like a cloud over the convention. Dr. George F. Swain of Harvard, one of the writers of the institute's standard specification, was prevented by serious illness from participating in the meeting. Not until the final day was President Kimbrough able to report improvement in Dr. Swain's condition.

* * *

THE golf tournament, under the direction of C. M. Denise, L. L. Gadd and Paul Willis, tempted many to remain at the Greenbrier over Saturday. Their chief concern was getting the golfers out on the links early Saturday.

* * *

IN DESCRIBING his experiences in Santa Barbara, when each new tremor sent a new shower of debris to the street, John L. Clymer proved to be not only a master of narrative but a first rate humorist. His fortunate decision to remain indoors in a shaking building when its designer urged him to leave was recounted amid roars of laughter.

* * *

SEVERAL speakers tried to avoid the use of the word "fabricator" because President Kimbrough does not like the term. "Structural steel manufacturer" was tried as a substitute but without much success.

* * *

SENATOR MOSES, who has delivered addresses at the last two conventions, eagerly accepted an invitation to attend the next one.

* * *

ALTHOUGH everybody must have heard it before, R. T. Brook's little four-line verse about the "setting sun," "profits shot" and "business done for fun" made a big hit—perhaps because it was so appropriate.

Technical Papers Reflect Engineering Progress

(*Concluded from Page* 1310)

Tests were made of several grades of rivet steel at various temperatures, the following conclusions being drawn:

High temperatures combined with alternate compression and tension are the cause of rivets breaking in hammer driving or of destroying physical properties to such an extent as to render rivets unfit for service.

Heating rivets to over 1950 degrees Fahr. produces a structure which will not withstand rapid alternate compression and tension.

A rivet heated to 1950 degrees Fahr. as a maximum limit, a sufficient time allowed for soaking, will drive just as easily and fill the hole equally as well as a rivet heated to a much higher temperature.

A rivet which "runs," emits sparks or "spits" should never be driven.

High sulphur accompanied by high manganese is not a cause of rivets breaking in driving.

Describe Earthquake Damage

Albert C. Martin, architect and engineer, Los Angeles, Cal., spoke on "My Experience With Concrete and Steel In Building Construction," while John L. Clymer, manager, Northern California division, California Institute of Steel Construction, San Francisco, spoke on "Structural Steel In Earthquake Areas." In both of these addresses, the behavior of structural material in major earthquakes was discussed. It was stated that at San Francisco in 1906, Tokio in 1923 and Santa Barbara in 1925, steel frame buildings withstood shocks in every case. Scores of illustrations were shown indicating the strength and security of steel construction in earthquake zones and indicating the point of failure in many other materials.

Dr. H. M. MacKay, McGill university, Montreal, described a comprehensive series of tests of I-beams encased in concrete. The address of Dr. George F. Swain, professor of civil engineering, Harvard University, Cambridge, Mass., who was seriously ill in the hotel at the time of the convention, was read by Mr. Abbot.

Research Quest For Truth

Dr. Swain defines research as the quest for truth, stating that there are no fields in which the whole truth is known. In his paper, he goes to some length to show how the term research is abused. "Research," he declares, "is a field not of education but after education—a field in which work should be done by men already trained to logical thinking and fully informed regarding all practical questions concerned with the application of the facts which are to be ascertained."

In making researches, he declared, it is well to ask and answer the following questions:

1. What is the object of the research?
2. Is it possible to accomplish the object even partially?
3. Is the object worth while?
4. Can the investigation be made in such a way as to yield definite and trustworthy results or even indications that are trustworthy guides?

In the absence of H. A. Frommelt, consultant, Milwaukee, W. E. Kreuger, Worden-Allen Co., Milwaukee, read Mr. Frommelt's paper on "Apprenticeship Systems In the Building Trades." This paper dealt with the well known apprenticeship system worked out by the foundry industry in Milwaukee and with the methods by which this system could be adopted to conditions in the building trades.

Sees Wide Use for Steel

Great possibilities for the use of structural steel in frame buildings, residences, garages and apartment houses were outlined by Henry R. Brigham, chairman, housing committee, National Association of Real Estate Boards, Boston. Steel is not playing the part that it could or should in the construction of these buildings, declared Mr. Brigham. As this country grows, the decrease in timber reserves will make it increasingly more difficult and expensive to use lumber in such construction to the extent that it is now used and the increasing congestion of our cities demands construction offering greater resistance to fire. He quoted reports of earthquake damage showing that structural steel is the best earthquake-proof building material yet known. He also referred to losses from tornadoes and pointed out that if steel could be furnished at attractive prices, its use in tornado zones would greatly reduce losses.

Mr. Brigham described a steel frame bungalow erected in the East in which labor and material costs were cut materially. The builder of this house declared that "when it becomes known by the steel concerns in this country that the steel frame fire proof house can be built at no greater cost than wood, they will also find that producing steel for house construction will greatly increase their tonnage."

The hull of what will be the largest steamer of the fleet operated by the Carnegie Steel Co. in the Pittsburgh district, was launched recently at the way of the American Bridge Co. The boat is designed for the Pittsburgh and New Orleans trade.

Discuss Furnace Design and Operation

Numerous suggestions for incorporating new ideas into the construction of blast furnaces were presented by Arthur G. McKee, president, Arthur G. McKee Co., Cleveland, at the morning session of the all-day conference held at the William Penn hotel, Pittsburgh, Nov. 12. This meeting, at which some 150 members and guests were present, was held under auspices of the steelworks section of the Engineers' Society of Western Pennsylvania.

Mr. McKee, in presenting "Some Observations Regarding Blast Furnace Design," advised greater attention to protecting the stock line in order to avoid distribution troubles, and also spoke for larger openings in downcomers, wider tops and greater slope to the inwall.

Another paper, by A. C. Maccoun, superintendent of blast furnaces, Edgar Thomson works, Carnegie Steel Co., Braddock, Pa., entitled "Modern Blast Furnace Stoves," pointed out that the modern furnace is expected to produce 700 tons of pig iron per day. While this would require a heating surface of 360,000 square feet, he recommended the 2-pass stove because of simplicity of construction and economy of operation, although it was admitted that having a reserve stove is good practice.

A joint paper was presented in the afternoon by T. L. Joseph, co-author with P. H. Royster and S. P. Kinney, all of the bureau of mines, Washington, on the "Effect of Physical Properties of Ore and Coke on the Capacity of the Blast Furnace." Laboratory and commercial furnace experiments have led to the conclusion that in retention of ores in a furnace most attention should be paid coke combustibility, porosity and density. Lantern slides charted the effects of different sized fuel in reducing ores, and while discussion agreed that sizing both ores and cokes would be ideal, the cost of this preparation was held to be prohibitive.

J. S. Fulton, representative of Ingersoll Rand Co., Pittsburgh, discussed "A Method of Determining Comparable Blowing Practices for Iron Blast Furnaces." He stated that blast furnaces ingest, digest and breathe and because each varies with surrounding conditions, it becomes exceedingly difficult to compare blowing practices. Mr. Fulton emphasized the importance of having a proper amount of air, wind or gas delivered to the blast furnace at all times.

British Steel Gain Brings Activity

(*Concluded from Page* 1303)

ing sold here involve an actual loss, and the only way to avoid this is to capture all the tonnage available.

Rather less is heard of American buying, but one large merchant has an inquiry for 5000 tons which is likely to be placed with India, owing to the low phosphorus content of Indian iron. With American prices rising, British furnacemen are hopeful of further Transatlantic business. One element inducing firmness is the slightly higher coke value. Contrary to expectation Durham coke is 1s ($0.24) per ton dearer than it was, now costing 19s ($4.60) delivered against the recent figure of 18s ($4.36). The shipment of some coke to America has had an influence in strengthening the market. But No. 3 Cleveland G. M. B. is still quoted at £3 6s ($16.00) and for a good contract 6d ($0.12) less would be accepted. The demand for East Coast hematite has improved, but for this iron also the quotation remains unchanged at £3 14s 6d ($18.06). Some delayed deliveries are reported in regard to this class of iron.

The galvanized sheet trade goes steadily forward. Makers have no difficulty in maintaining the £16 12s 6d ($80.62) figure lately established and occasionally for prompt delivery they ask £16 15s ($81.23). Most of the booking is for next year's shipment and there is a tendency to quote higher prices on this business also. Demand has improved for thick gages, with better inquiry also on thin sheets.

The improvement in tin plate appears sound and steady. Some recent bookings have been for delivery up to June and booking over first quarter is general. The price has become £1 ($4.85) with an occasional transaction at 3d ($0.06) advance. Business would probably be much heavier but for the depreciation in the franc which has militated against continental buying. Steelworks are able to buy foreign bars at £5 1s ($24.49) delivered, at least £1 ($4.85) below the local product.

A possible labor trouble has been averted by the agreement on the part of the employers to extend for a further three months the 6¼ per cent bonus over the wage rate awarded by the sliding scale to supplement the men's earnings.

Steel scrap has shown a slight improvement, £3 7s 6d ($16.36) being the recognized price for delivery in South Wales and £3 ($14.55) in the Midlands.

German Exports Larger

Berlin, Nov. 5.—(*European Staff Service*)—Germany's exports of iron and steel products for August showed a slight increase of 27,415 tons compared with the preceding month. Exports in August amounted to 291,848 metric tons against 264,433 tons in July, 238,818 tons in June and 304,492 tons in January. Exports in August were double those for the corresponding month in 1924, the figure for August 1924 being 146,491 tons.

Among the principal items exported were 51,590 tons of bars and bands, 35,495 tons of plates and sheets, 31,946 tons of rails and track fastenings, and 28,260 tons of rolled and drawn wire.

German imports in August amounted to 107,707 metric tons compared with 132,692 tons in July, 143,068 tons in June, 260,525 tons in January, and 42,591 tons in August 1924.

Among the principal items imported in August were 36,360 tons of bars and bands, 20,545 tons of pig iron and 16,763 tons of blooms, billets and sheet bars.

French Exports Stimulate Production

PARIS, Nov. 9.—(*European Staff Service*)—Increasing exports of steel products which the French enjoyed during September has brought an increase in production. September output of steel ingots and castings was 631,726 metric tons, the highest figure on record, the preceding high mark having been reached in July with 625,344 tons. The September output includes 620,131 tons of ingots and 11,595 tons of steel castings. The larger part was basic bessemer steel, 445,505 tons; open-hearth steel was made to the extent of 172,505 tons; 6490 tons were acid bessemer steel; 6184 tons were electric steel, and 1042 tons were crucible steel.

Pig iron production in September totaled 716,613 metric tons compared with 712,547 tons in August and 724,164 tons the highest mark reached in July. The number of blast furnace stacks operating Oct. 31 was 143, against 141 Sept. 1 and 144 Aug. 1. The September production included 532,588 tons of basic bessemer pig iron, 127,351 tons of foundry pig iron, 26,550 tons of gray forge pig iron, 25,633 tons of special grades, and 4811 tons of acid bessemer pig iron. The following table shows production figures month by month, in metric tons:

Mon. ave.	Pig iron	Steel ingots and castings
1913	433,900	390,580
1922	435,715	377,875
1923	452,650	425,795
1924	637,660	575,540
1925		
January	669,352	608,146
February	636,934	569,007
March	688,871	607,076
April	686,130	586,977
May	706,264	596,809
June	703,439	599,857
July	724,164	625,344
August	712,547	616,730
September	716,613	631,726

French exports of steel products reached their highest mark in history during September at 306,418 metric tons, against 281,910 tons in August and 293,000 tons the previous highest mark in June. For the first nine months exports of steel totaled 2,407,127 metric tons, compared with 1,678,875 tons during the corresponding period of last year, an increase of about 43.5 per cent. Exports of pig iron during September were 52,331 metric tons, a drop of slightly over 12,000 tons in comparison with the preceding month. The highest figure reached for pig iron exports from France was in February 1924, with 92,409 metric tons.

Total exports of pig iron for the first nine months of this year were 503,000 metric tons, against 549,933 tons during the corresponding period of last year, showing that exports of pig iron in the first three quarters of this year were 8.5% less than in the first nine months of 1924.

Imports of pig iron into France in September reached the low figure of 1572 metric tons, against 3152 tons in August. Imports of steel totaled 11,544 metric tons compared with 1094 tons in August and 20,915 tons in July. Monthly figures are shown in the following table, in metric tons:

	IMPORTS		EXPORTS	
Mon. ave.	Pig iron	Steel	Pig iron	Steel
1922	4,955	56,085	60,060	172,585
1923	5,305	55,495	49,320	153,990
1924	3,540	56,780	63,900	187,380
1925				
January	2,366	22,192	63,239	226,702
February	3,417	17,346	39,810	256,198
March	2,121	3,050	61,481	251,589
April	3,871	9,888	57,995	254,669
May	1,898	11,339	57,158	262,046
June	2,829	9,911	52,077	293,000
July	1,939	20,915	54,376	274,595
August	3,152	1,094	64,533	281,910
Sept.	1,572	11,544	52,331	306,418

Belgian Output Grows

Brussels, Nov. 9.—(*European Staff Staff Service*)—Resumption of work in many of the iron and steel plants in Belgium has resulted in an increase of iron and steel production, although September figures are still well below the average which had been attained since 1923.

September output of pig iron was 170,280 metric tons, compared with 166,300 tons in August. The output of steel totaled 164,580 tons, against 150,300 tons in August. The September figures include 159,050 tons of ingots and 5530 tons of steel castings. The output of finished steel was 134,010 tons compared with 121,120 tons in August.

During September Belgian cokeries produced 303,280 metric tons of coke, against 308,970 tons in August. The following table gives monthly production figures in metric tons:

Mon. ave	Coke	Pig iron	Steel ingots and castings	Finished steel
1913	293,585	207,055	205,550	154,820
1922	237,490	134,430	130,430	112,215
1923	348,330	178,995	191,410	161,950
1924	346,650	234,000	238,380	198,115
1925				
Jan.	369,400	249,350	246,160	212,870
Feb.	342,480	245,600	239,660	199,310
March	385,570	281,560	268,550	219,910
April	373,310	267,850	250,990	207,860
May	373,000	274,800	252,720	201,490
June	330,710	212,700	196,710	152,240
July	306,420	168,480	155,140	128,150
Aug.	308,970	166,300	150,300	121,120
Sept.	303,280	170,280	164,580	134,010

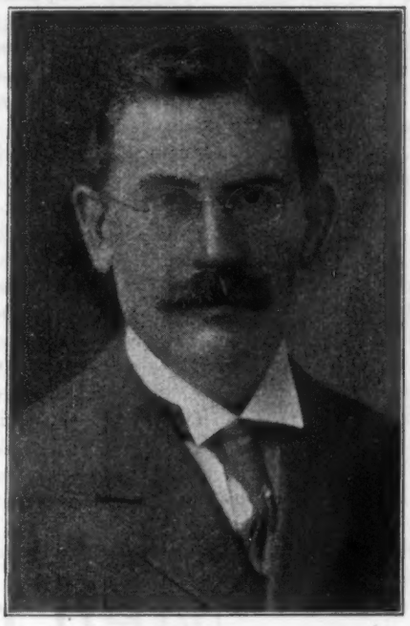
Industrial Men in the Day's News

William W. Hearne, for 42 Years Active in the Pig Iron Industry

BEFORE the days of typewriters and telephones he entered industry as an office boy, arising to national prominence in pig iron selling.

ONE of his chief contributions to industrial progress was his development of younger executives all of whom have attained success.

GOLFING, gardening and fishing are the hobbies which have been instrumental in maintaining him youthful and vigorous.



ABOUT the time of the Civil war, Chillicothe, O., was the birthplace of three boys who later were to grow to fame in the American iron and steel industry. One was the late George Smart, one time editor of IRON TRADE REVIEW and later of *Iron Age*. Another was the late John M. Warner, ultimately resident partner at Philadelphia for Rogers, Brown & Warner. The third of these boys was William Weston Hearne, who from a vantage point of several years, regarded the other two as children not worthy of much attention. It is likely that young Hearne must have been a shrewd trader in jack-knives and other articles dear to the boyish heart, for he early exhibited propensities that have enabled him to flourish for 42 years as a successful trader in iron and steel and allied products.

"Washing the ink bottles" was the route by which a good many of the old-timers in the business got their start. Mr. Hearne went through Hughes high school at Cincinnati, and then joined the class of 1883 at Kenyon college, Gambier, O. At the beginning of his third year his money had given out, both his parents had died and it was necessary for him to make his own way. He left college Oct. 1, 1882, and the next day went to work for Matthew Addy & Co. in Cincinnati as office boy. Mr. Addy, one of the predominant pig iron men of that time, firmly believed that the ink bottle washing route was the only way to get a good start in the pig iron business. All the records in those days were written by hand with pen and ink and clean ink was essential. It was young Hearne's task to collect the ink bottles each morning, clean and fill them afresh for the day's work.

For performing duties of this kind, Mr. Hearne was on the payroll at $5 a week. He soon was appointed to the post of shipping clerk but the inside work palled on him. Early in 1883 he had become well grounded in the merchant pig iron business and Mr. Addy sent him down to Chattanooga, Tenn., Birmingham, Ala., and Rising Fawn, Ga., on an important errand. Up to that time the different makers had been grading pig iron in accordance with their own ideas, so that the grades varied for each furnace. Mr. Addy wanted Mr. Hearne to try and promote some uniformity. At that time all grading was done by the eye. Mr. Hearne would break pigs at each furnace, grade them visually, and set them properly labeled on a shelf. These shelves at each furnace, therefore, contained permanent exhibits of No. 2, No. 2½, No. 3, No. 4, gray forge, mottled, No. 1 soft and No. 2 soft, as the various grades then were known. This method of grading continued to be employed by the southern trade for a great many years.

Mr. Hearne had a prominent connection with the introduction of basic iron in this country. In 1893 the first iron of this grade was made by the Pennsylvania Steel Co. He was the first to sell chill-cast basic, the product of the old Longdale Iron Co. He sold this iron in 1893 to the A. & P. Roberts Co., the Phoenix Iron Works, and the Pennsylvania Steel Co. On Aug. 6, 1895, he made a remarkable sale for those days. He sold to the Carnegie Steel Co. 25,000 tons of basic to be made at the Alice furnace of the Tennessee Coal, Iron & Railroad Co. The Tennessee company never had made basic before, so Mr. Hearne's next step was to go to Nashville, then to Birmingham, to show the furnace men how to turn out this product. The Tennessee company had a good deal of difficulty with this order, about half

the iron being off-grade. The Tennessee company decided that if it could make basic for the Carnegie Steel Co. it could do so on its own account and built its initial steel works at Ensley.

In 1896, when Mr. Addy died, the firm of Matthew Addy & Co. were sales agents for the iron produced by the de Bardeleben Coal & Iron Co., while Rogers, Brown & Co. sold the output of the Ensley Coal & Iron Co. Both these producers were subsidiaries of the Tennessee Coal, Iron & Railroad Co. To eliminate the selling competition between these subsidiaries Matthew Addy & Co. was appointed agents for both with the stipulation that a member of the firm should be established at Philadelphia to take charge of the company's business in the East. Accordingly, that year, Mr. Hearne took up his headquarters in Philadelphia, where he ever since has been located. At the same time he opened an office at New York, in charge of the late E. B. Blandy. Mr. Hearne had charge of all the sales, principally pig iron, billets and slabs, of the Tennessee Coal, Iron & Railroad Co. in the territory east of Altoona and including Buffalo. One of his achievements at that time was the sale to the Pennsylvania railroad of two sample lots of rails to be produced by the Tennessee company. These rails were for installation on the Pennsylvania system for a try-out. The idea was that if they proved satisfactory to the Pennsylvania railroad, the southern roads would not hesitate to take them. That was the beginning of the Tennessee company's career as a rail maker.

In 1902, the year of the great anthracite coal strike, Mr. Hearne went to Europe and visited most of the pig iron producers of Great Britain and the Continent.

Perhaps the greatest achievement of Mr. Hearne, from the standpoint of the industry, is the extent to which he gave initial training to young men who since have attained positions of prominence. Under him they learned the rudiments of trading, an art which not only embraces salesmanship but the ability to get materials to sell. When Mr. Hearne opened the Philadelphia office, one of the first stenographers was Charles H. Newcomb, now vice president at Philadelphia, for Rogers, Brown & Crocker Bros. Inc. Others who got their start under Mr. Hearne include Nils Anderson, president Debevoise-Anderson, New York; Charles Birch, until recently with Henry H. Adams & Co., New York; H. C. DuBois, vice president E. J. Lavino & Co., Philadelphia; A. J. Wallace, in charge of the refractories department of E. J. Lavino & Co.; Charles Boyden, until recently New England representative of Crocker Bros.; Lewis R. Smith, president of Lewis R. Smith & Co., New York; Clarence Tolan, Dodge Steel Co., Philadelphia, and others.

Following the failure of the Matthew Addy Co. in 1924, Mr. Hearne organized the firm of Wm. W. Hearne, Inc., with headquarters in the Real Estate Trust building, Philadelphia. It was organized Oct. 2, 1924, the forty-second anniversary of Mr. Hearne's start in the business. Mr. Hearne is president.

Mr. Hearne has seen many iron men come and go. Resisting the onslaught of time, he plays golf regularly, tends his garden and likes to take walks. When the season is right, he goes on fishing trips to a lonely island in Georgian Bay.

Men of Industry

Personal News of a Business Character Pertaining to the Iron and Steel and Related Fields of Enterprise

CHARLES W. BENNETT, was elected vice president and director of the American Sheet & Tin Plate Co., Pittsburgh, effective Nov. 10, to succeed the late Stewart A. Davis, vice president in charge of operations. At the same time William A. Irvin was elected vice president in charge of plant operations. Mr. Bennett formerly was assistant to E. W. Pargny, president, and Mr. Irvin formerly was assistant to Mr. Davis.

Mr. Bennett, after being graduated with the class of 1892 from the University of Wisconsin, entered the mechanical department of the Illinois Steel Co., Joliet, Ill., where he remained for about three years. In 1897 he was made mechanical engineer at the Ellwood, Ind., plant of the American Tin Plate Co., which was combined with the American Sheet Steel Co. to form the American Sheet & Tin Plate Co., and Mr. Irvin became district manager of the Indiana plants. He remained at Ellwood for about nine years, and on Jan. 1, 1906 was appointed assistant to the president of the American

CHARLES W. BENNETT

Sheet & Tin Plate Co., a position which he has held for the past 20 years. Mr. Bennett is a member of the American Society of Mechanical Engineers, the American Iron and Steel institute, and the Engineers' Society of Western Pennsylvania. He holds membership in the Duquesne, Pittsburgh Country and University clubs, as well as the Pittsburgh Athletic association.

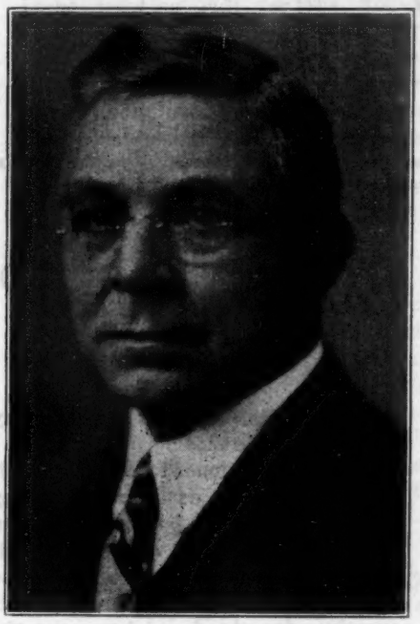
Mr. Irvin was born in Indiana, Pa., Dec. 7, 1873 and his education was obtained in the public schools there as well as in the night school of the Indiana State Normal. In 1888 he was employed by the Pennsylvania railroad as telegraph operator and later as freight and passenger clerk on the West Penn division. In 1895 he entered the steel business, being employed by P. H. Laufman Co., Ltd., Apollo, Pa., one of the pioneer sheet steel and tin plate producers of the United States, where he remained until 1900 when the American Sheet Steel Co. was organized. At that time Mr. Irvin was sent to general offices of the company in New York and ever since he has been in the cost and operating departments of the company. He has been assistant to the operating vice president for

about 20 years. Mr. Irvin is a member of the American Society for Testing Materials, the Society of Automotive Engineers, and the American Iron and Steel institute. He is a director of the Keystone National bank, Pittsburgh, and is a member of the Duquesne and Pittsburgh Field clubs, the Pittsburgh Athletic association, and the Pittsburgh chamber of commerce.

* * *

Elbert H. Gary, chairman of the United States Steel Corp., has been elected to fill a vacancy in the Methodist Conference Trustee group of Syracuse university.

Nathan L. Miller, former governor



WILLIAM A. IRVIN

of New York, now general counsel of the Steel corporation, was elected to fill a vacancy in the group of trustees at large.

* * *

Russell Schultz, sales representative of the Bethlehem Steel Co., has been transferred from the Seattle Office to Los Angeles. The change was made Nov. 1.

* * *

C. E. Nelson has been appointed advertising manager of Stanley Works, New Britain, Conn., manufacturers of hardware and cold strip steel products, to succeed R. H. Young, resigned. Mr. Nelson formerly was assistant advertising manager.

* * *

G. W. Mead has been elected chairman of the board of the Linde Air Products Co., New York. He formerly was president, and is succeeded by W. F. Barrett, formerly vice president. R. R. Browning was elected vice president in charge of sales activities and J. A. Rafferty vice president in charge of engineering, manufacturing and research.

* * *

Wilbur R. Maher has joined the New York sales organization of E. Arthur Tutein, Inc., 52 Vanderbilt avenue that city. Mr. Maher had been for many years with Rogers Brown & Co., first at Boston and later at Buffalo.

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A. C. Denman, president of the Southern California Iron & Steel Co., in Los Angeles, the controlling interest of which was purchased recently by the Pacific Coast Steel Co., has resigned and E. S. Houdlette, Director of sales for the Pacific Coast Steel Co., with headquarters in San Francisco, has been elected vice president in charge of sales.

* * *

M. J. Carney, formerly president, has been elected chairman of the board of the Prest-O-Lite Co., Inc., New York. William F. Barrett, formerly vice president, was elected president and Ralph R. Browning was made vice president in charge of acetylene sales activities. R. J. Hoffman was re-elected vice president in charge of the storage battery and automotive divisions.

* * *

Joseph N. Shenstone was elected president of the Massey-Harris Co., Toronto, Ont., to succeed Hon. Vincent Massey who has retired from that position and has entered the King government cabinet. Mr. Shenstone has been associated with the Massey-Harris Co., for more than 40 years, in various capacities, and was vice president and chairman of the board of directors. Thomas Bradshaw, general manager of the Massey-Harris Co., also has been appointed vice president of the company.

* * *

George L. Erwin, Jr., has been appointed sales manager for the Kearney & Trecker Corp., Milwaukee, manufacturer of machine tools. He was a graduate of Cornell university, and received his preliminary machinery experience as an apprentice with Putnam Machine Works. Later he was a salesman in the St. Louis office of Manning, Maxwell & Moore, and then with the Chicago office of the Kearney & Trecker Corp. For the past two years he had been advertising manager, of the latter corporation which duties he will retain with his new position.

* * *

Dean K. Chadbourne has been appointed general manager of the Westinghouse Electric International Co. to succeed E. D. Kilburn who recently was elected vice president of the Westinghouse Electric & Mfg. Co. Mr. Chadbourne was born in Elmira, N. Y., and graduated from Purdue university in 1906 with the degree of bachelor of science in electrical engineering. He was connected for six years with the Chicago office of the Allis-Chalmers Mfg. Co. and then became district manager of the George Cutter Co., South Bend, Ind. In 1920 he joined the Westinghouse Electric International Co. and was made manager of the far eastern department.

* * *

S. T. King, formerly with United Alloy Steel Co., Canton, O., and the Wheeling Steel Corp., Wheeling, W.

J. L. KIMBROUGH

Va., was named superintendent of the full finishing sheet mill department at the Brier Hill plant of Youngstown Sheet & Tube Co., Youngstown, O.

* * *

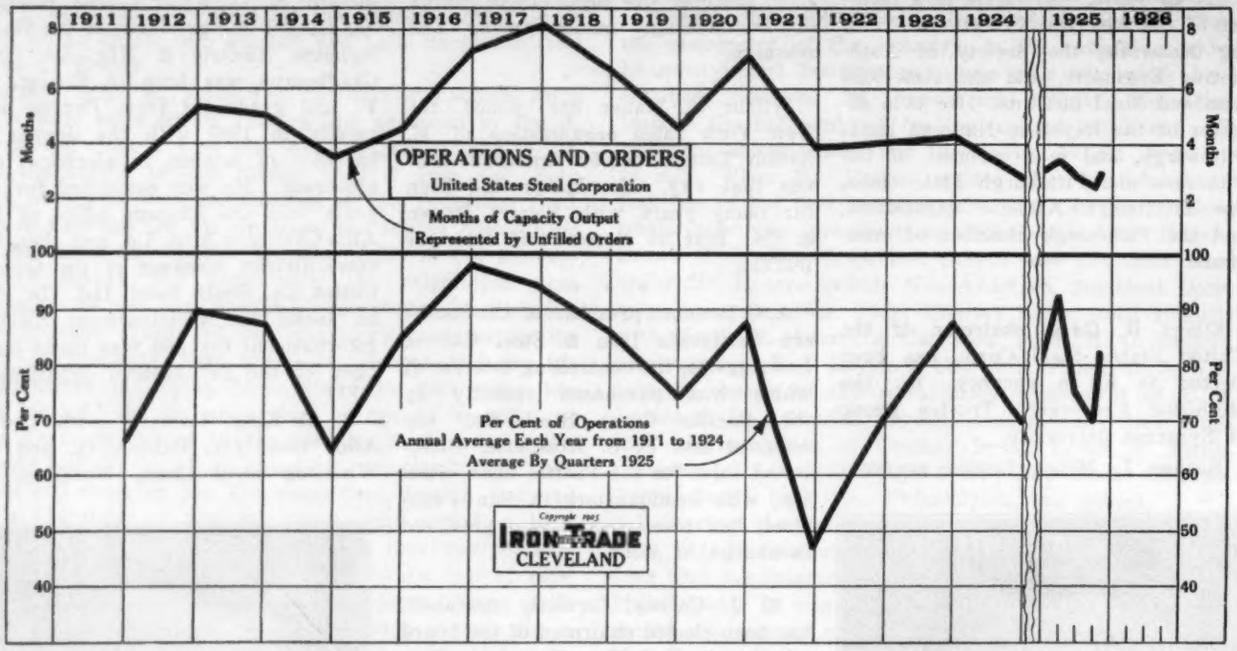
F. E. Dussel, vice president, secretary and treasurer of the Transue & Williams Steel Forging Corp., Alliance, O., has been elected president of the company to succeed the late Oliver F. Transue.

Frank W. Trabold, general manager, succeeds Mr. Dussel as vice president and treasurer. Presidents have not been elected as yet for the Buckeye Jack Co. and Buckeye Twist Drill Co. both of Alliance which offices were vacated by the death of Mr. Transue.

* * *

J. L. Kimbrough, general manager and treasurer of the Indiana Bridge Co., Muncie, Ind., has been re-elected president of the American Institute of Steel Construction, at its recent con-

(*Concluded on Page* 1319)



The upper line in the diagram shows the number of months of capacity output of the United States Steel Corp. that is represented by the monthly average of unfilled orders over a series of years. The lower line represents the monthly average per cent of plant operations of the corporation. The figures for 1925 are the monthly averages by quarters

Is Present Time Best To Buy Ahead?

By E. C. Kreutzberg

NEW YORK, Nov. 17.—Leading purchasing agents here believe this is a good time to anticipate their requirements of certain commodities. Already some large companies have authorized extensive future commitments, and others have up the subject of purchases for early decision.

The situation as to iron and steel is similar to that which prevailed a year ago. Important buyers regard present pig iron and steel prices as low, and believe that the average purchase at today's prices will prove a bargain anytime up to July 1 of next year.

Some steel products now are scarce, such as steel pipe, and the delivery dates on some other products are moving further away. The entire situation is regarded as indicating a materially stronger condition. Pig iron stocks at eastern furnaces are so small as to be negligible and some leading consumers look for a pig iron scarcity. Several buyers, including one of the largest in the country, have bought enough pig iron to last well into the second quarter of next year. Some others are inquiring for the second quarter.

Coke is regarded as certain to remain strong as long as the anthracite strike continues, and as there is no indication when the strike will end the attitude is toward liberal anticipation of coke requirements. On the other hand, leading companies are not departing from their usual custom with respect to bituminous coal because they feel there is plenty of this fuel in the country. Present fuel oil prices are regarded as low, and several large interests have placed contracts covering their entire oil requirements over the next year.

The present attitude does not extend in all cases to the nonferrous metals. Buyers regard lead, zinc and nickel prices as high and hence are not disposed to commit themselves further than necessary. With respect to copper, some have acted on the belief that the present price is moderate.

There has not been any sweeping change from the hand-to-mouth buying attitude. It is merely that buyers are getting away from hand-to-mouth purchasing methods in certain commodities, because they believe that a continuation of this policy would be unsafe. The buying philosophy is well expressed as follows by one of the chief executives of a large corporation:

"We have plants that use certain quantities of each different raw material every day. We must provide these materials to the plants as needed so that there may be no delay in our operations due to failure of the material supplies. That is our primary problem in purchasing.

"But we continue to regard hand-to-mouth buying as normal buying. By hand-to-mouth buying we mean buying the material as we need it, thus eliminating speculation. In so buying we do not have to commit ourselves far ahead and hence get the benefit of breaks in the market. We depart from this policy only when material shows signs of becoming scarce, foretelling that prices and deliveries are going to be affected. This is the changed situation we are encountering now in certain important commodities."

"We never speculate by buying ahead unless there is something decidedly to be gained," says a chief executive of another company with a number of large plants in different parts of the country. "For climatic reasons it is necessary to lay in stocks of material in the fall, such as coal. It is necessary to keep a stock of materials which are manufactured or shipped from abroad. We have decided to buy farther ahead than usual in certain commodities. We will proceed from the standpoint of assuring ourselves of a sufficient supply of materials to enable us to maintain our operations. But we will continue to be governed by the belief that hand-to-mouth buying is the best policy.

Here and There in Industry

Live Information Which Records the Expansion of Various Lines of Productive Enterprise

RECENT sales by Wellman-Seaver-Morgan Co., Cleveland, include six 4-foot Chilian mills for Johnson & Fletcher, South Africa. This is another indication of the favor in which American machinery is held in other countries. This builder recently booked a large order for bridges for the Inspiration Copper Co. of Arizona, a tube reducing mill for the Youngstown Sheet & Tube Co., an 8-foot gas producer for the Stauffer Chemical Co., 10-foot gas producers for West Virginia Pulp & Paper Co. and Reading Iron Co., Reading, Pa., 70 marine engines for the Elco Works, Bayonne, N. J., and various equipment for the New Jersey Zinc Co., the Koppers Co. and the Semet Solvay Co.

* * *

EASTERN IRON ORE CO. has been organized by Harry M. Roche, Martin C. Haven and Dr. J. Willard Farrows, Dover, N. J., with $200,000 capital. It has bought the Beach Glen iron ore mine and concentrating mill at Rockaway, N. J., formerly operated by the North Jersey Steel Co. and will resume production.

* * *

OGLEBAY, NORTON & CO., Cleveland, has leased five 40-acre tracts of ore land at Iron River, Mich., for 50 years, from the Palms-Book Land Co., Detroit. The tract is west of the old Chatham and Hiawatha mines and has been explored. Shipments will be by way Escanaba, Mich.

* * *

A LARGE single box floating dry dock, 330 feet long, 80 feet wide and 30 feet deep was launched Nov. 10 at the yards of the Brewer dry dock at Mariners Harbor, Staten Island, for the Brighton marine repair yards. The latter are owned jointly by the Lehigh Valley and Lackawanna railroads.

* * *

DRIVER-HARRIS CO., Harrison, N. J., has absorbed the plant and business of the Electrical Alloy Co., Morristown, N. J., which will be operated as the electric alloy division, with sales department at Harrison. Frederick Lindsey, sales manager for resistance materials for the Electrical Alloy Co., will continue in that capacity with the purchasing company. Officers of the Driver-Harris Co. are: Frank L. Harris chairman, Frank L. Shriver Jr., president, William P. Martin and Harry D. McKinney vice presidents and M. C. Harris secretary.

* * *

A REORGANIZATION of the Laurel Motors Corp., Anderson, Ind., has been completed. The new corporation is headed now by Arthur S. Sinclair. Other officers are Charles Teutenberger, vice president; Norman H. Winter, secretary-treasurer; William Schnarr, William Winter and B. J. Herman, directors, all of St. Louis.

* * *

LONDON ROLLING MILL CO., Ltd., Philip street, London, Ont., has bought the plant of the former British Forgings Co., on Ashbridges Bay, Toronto, recently owned by the Baldwin Canadian Steel Corp., which has been idle several years, and will remove it to London. The Baldwin corporation retains possession of the tin plate mill but no plans have been made to place it in production.

* * *

CONTROL of the Columbus Anvil & Forging Co., Columbus, O., has been bought by J. E. Finneran, who has been connected with the Buckeye Steel Castings Co. for 22 years, the last 12 of which he was purchasing agent. He has become president of the company. It produces miscellaneous machine steel forgings, tool steel and composite die forgings and wrought iron anvils.

* * *

CORBET FOUNDRY & MACHINE CO., Owen Sound, Ont., and G. E. Stevenson Co., Indianapolis, have been merged under the name of the Corbet Machine & Gear Co., with head offices at Owen Sound. A new type of multiple shaper and gear cutter will be manufactured. The new company is capitalized at $340,000. Richard Corbet is president, G. E. Stevenson vice president and Fred J. Corbet secretary and treasurer.

* * *

BAR & BILLET SCRAPER CO. INC., has been incorporated in New York to take over patent rights for the United States and foreign countries for a mechanical device for the hot scraping of billets and sheet bars during the rolling process. Offices are with Perin & Marshall, consulting engineers, 40 West Fortieth street, New York. Frank L. Estep is president, Harry Dobrin vice president and D. J. Ogilvie secretary and treasurer.

* * *

CLARK CONTROLLER CO., Cleveland, has occupied the plant of the former Blomquist-Eck Machine Co. at 1146 East 152nd street and will engage in the manufacture of electrical control apparatus. P. C. Clark is president, J. A. Ellis vice president, and general manager, C. R. Wendt secretary and treasurer, H. B. Claflin works manager, L. A. Watson chief engineer, C. H. Rippl Jr., development engineer and W. H. Williams sales manager.

* * *

UNDER a lease arrangement, the Interstate Car & Foundry Co., Indianapolis, has been incorporated to take over the business of the Inter-State Car Co. according to Eugene H. Darrach, president and treasurer of the old organization. Directors of the leasing company are George J. Diver, Leo R. Meyer and Frank B. Stout, all associated with the old company. Orders have been received to fill the capacity of the foundry department. The car department will continue to be operated as in the past.

* * *

BREESE BROS. CO., Cincinnati, O., has let contracts for an addition to its plant, two stories, with 30,000 square feet of floor space, to accommodate larger demands for production. Equipment will be installed to handle fabrication of heavier sheet products. The company was incorporated in 1904 and occupied a small room for its plant. After several moves to larger quarters the company bought the present plant at 2347 Reading road. In 1921 this plant was burned and rebuilt. The present addition will give it about 100,000 square feet of space.

* * *

EMSCO DERRICK & EQUIPMENT CO., J. S. A. Smith secretary and treasurer, has been formed by a merger of the Emsco Steel Products Co. and the Emsco Tool Co., all of Los Angeles. A branch will be opened at Houston, Tex., early in the year. An addition to the machine shop of the Emsco Tool Co. will be erected at once, increasing capacity about

30 per cent. Officers of the new company are: E. M. Smith president, W. A. Trout and E. W. Goeser vice presidents and L. S. A. Smith secretary and treasurer.

* * *

MECHANICAL PATTERN WORKS, 4545 Pacific boulevard, Vernon, Calif., has completed two 1-story additions, one for a foundry and the other for a pattern shop.

* * *

FOUNDRIES of the Ward Heater Co., at Los Angeles and Pasadena are being consolidated and a new cupola installed, to increase capacity for production. Samuel Sprout is president of the company.

* * *

PART of the production of the American Closet Valve Co., Indianapolis, has moved to a new building to give increased production. The company was formed primarily to manufacture plumbers' specialties but this branch of production is being superseded by porcelain enameling.

* * *

PERMIT to do business in Texas has been granted by the secretary of state to the Texas Steel Co., incorporated under the laws of Delaware, and with Texas headquarters at Fort Worth. The company has a capital stock of $2,000,000. George W. Armstrong of Fort Worth is president; G. W. Link of Fort Worth, vice president. Directors are these two officers and John H. Kirby of Houston; George W. Armstrong Jr., F. B. Barnum, Miss I. M. Cosby and C. L. Robison, all of Fort Worth.

* * *

NORTHWESTERN MALLEABLE IRON CO., Milwaukee, will spend about $100,000 in modernizing its annealing facilities. The present battery of 12 ovens will be replaced by a new continuous type, 20 x 202 feet, reducing the period of annealing from eight to seven days, with greater uniformity of result. The foundations are being constructed and bids on the oven work will be taken shortly, so that the facilities will be ready for use about Feb. 15 or March 1.

* * *

YALE & TOWNE MFG. CO., Stamford, Conn., has recently purchased the Miller Lock Co., Philadelphia, and the plant of that company will hereafter be operated as the Miller Lock Works of the Yale & Towne Mfg. Co. This is the third competitor acquired by the Yale & Towne Mfg. Co. during the past month, the other two being the Sager Lock Co. of North Chicago, Ill., and the Barrows Lock Co. of Lockport, Ill. The company now has six plants, the three just mentioned, the parent plant at Stamford, a plant at St. Catherine's, Ontario, and a plant in Germany.

* * *

REORGANIZATION of the New Britain Machine Co., automatic screw and chucking machines, New Britain, Conn., is progressing rapidly according to report of the committee in charge. The deficit has been wiped out and a sinking fund amounting to $300,000 has been created. The plan of procedure was approved at a recent meeting of the board of directors at New Britain.

* * *

HISTORY was made Nov. 9 when the steamer GRAMMER arrived at Milwaukee from Buffalo with a cargo of rolled steel products from the mills of the Donner Steel Co., consigned to L. E. Meidinger, sales manager in the Milwaukee district, for distribution among his customers. It was the first time that an eastern steel plant has used the all-water route for delivery to mid-western customers. In the past lake-and-rail shipments were frequent, and all-water deliveries were made at times on break-bulk vessels, but never before has a complete cargo passed by water from the East to Milwaukee.

* * *

LYON IRON WORKS, Green, N. Y., which has been in operation since 1840, has changed its line of production within the past year and now is manufacturing a line of skid platforms, industrial trailers, trucks, casters and similar units. Distribution is through Fink-Dumont-White Co. Inc., New York. F. P. Fink and R. B. Dumont, of that company recently bought a substantial interest in the company and have been elected vice president and secretary-treasurer. George G. Raymond continues as president and general manager.

Castings Are Cleaned Hydraulically

(*Concluded from Page* 1269)

over into the second section but none of the recoverable sand goes beyond.

Once every 24 hours a clam-shell bucket lifts the sand from the first two sections onto a tiled floor adjacent to the chamber. After 24 hours this sand is dry enough to go into the riddle for re-use. The fine silt and mud in the remaining five sections of the settling tank are removed only every two or three months, and a use for this material is being devised. By the time the water has traveled through the settling tank and has reached the pump it is clear enough for immediate reuse. The recovery of sand amounts to 40 tons a day, after drying. Rarely is this sand found to contain more than 7 per cent moisture after one day on the tiled drying floor.

Since the three roof sections telescope over a 15-foot space, the heaviest castings can be brought in by three of the six cranes which serve the main foundry building. To facilitate the work the smaller turntable is equipped with a dump plate on which a number of castings can be placed, and thus one lift in and one lift out account for three or four medium-size castings. Small work is handled in a basket which is set upon the smaller turntable.

After six months of actual operation the plan is declared to be a complete success. The main foundry at West Allis melts 6,000,000 pounds of gray iron a month. Most, but not all, of this work is cleaned in the hydraulic chamber. Some castings from the other foundries at the plant are cleaned, plus an occasional large steel casting from another Milwaukee foundry. While gray iron is the bulk of the tonnage handled, steel and brass castings have been cleaned with equal success.

Thus far Allis-Chalmers engineers have probably leaned over backwards in permitting large castings to cool, but water can be applied practically as soon as hand labor can be utilized. The cranes hook onto the arbors in the larger castings and pull them out intact; under the hand method they were usually lost, and the consequent saving is $30 to $40 per arbor. It is estimated that the saving in washing out gaggers and rods without breakage is $6000 per month over the hand method.

Formerly 60 men were employed to clean and chip. Now, two men suffice for the hydraulic chamber and 14 men chip and perform other tasks. The cost of water, from an artesian well on the company's premises, is negligible and no sand is lost. Thus far no casting has been damaged by high-pressure cleaning, though as high as 450 pound pressure has been utilized. A weighty factor is that dust and dirt have been eliminated, and the cleaning end of the main foundry has become so outstanding in this respect that other portions suffer by contrast. Monitors on the roof provide ample ventilation without resort to fans. Save for the hydraulic elevator in the operators' house, which was manufactured by the Otis Elevator Co., and the Cutler-Hammer Mfg. Co. starter board, the chamber and its equipment are products of the Allis-Chalmers shops.

Men of Industry

(*Continued from Page* 1315)

vention at White Sulphur Springs, W. Va. W. M. Wood, former vice president, was made first vice president. He is affiliated with the Mississippi Valley Structural Steel Co., Decatur, Ill.

C. Edwin Michael of the Virginia Bridge & Iron Co., Roanoke, Va., was made second vice president, a new office. N. W. Warren, Dominion Bridge Co., Ltd., Montreal, Que., was elected a director to fill the unexpired term of E. S. Mattice, while W. S. Mosher, Mosher Steel & Machinery Co., Dallas, Tex.; R. Llewellyn, Llewellyn Iron Works, Los Angeles, and Mr. Michael, were elected directors for one, two and three year terms, respectively. Directors re-elected were C. A. Schneider, General Iron Works Co., Cincinnati; A. J. Dyer, Nashville Bridge Co., Nashville, Tenn.; C. W. Russell, Russell Wheel & Foundry Co., Detroit; G. E. Klingelhofer, Pittsburgh Bridge & Iron Co., Pittsburgh; and Mr. Wood.

Obituaries

LORD LEITH of Fyvie, well known in iron and steel circles in this country, was found dead Nov. 14, at his home, Hartwell House, near Atlesbury, near London. He was 78 years old. Lord Leith, in 1871, married the daughter of D. A. January of St. Louis. He later became president of the Joliet Steel Co. until it was absorbed by the Illinois Steel Co., in 1890. He then became first president of the Illinois company, resigning that year. He became chairman of the finance committee and continued as chairman and director until the company was absorbed by the Federal Steel Co. in 1898. He returned to Scotland in 1898.

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Warren C. Bailey, 53, treasurer of the plant at Sharon, Pa., of the National Malleable & Steel Castings Co., died suddenly Nov. 16.

* * *

Clinton L. Rossiter, vice president of the Underwood Typewriter Co., New York died Nov. 12 at the Hotel Margaret in Brooklyn, N. Y.

* * *

George Frye, superintendent of the machine shop of the Vonnegut Machinery Co., Indianapolis, was killed Nov. 10 by electricity while testing a new machine.

* * *

Nicholas Miller, 86 years old, for years erecting engineer for the Atlas Engine Works, Indianapolis, died Nov. 10. He was a veteran of the Civil war and served under both Generals Sherman and Grant.

* * *

Charles F. Drake, Highland Park, Ill., for years with the Babcock & Wilcox Co., Chicago, died recently at the age of 50. He was a member of the American Society of Mechanical Engineers.

* * *

John W. P. Lombard, treasurer of the Colby-Bessemer Iron Co., died of heart attack at his home in Milwaukee, Nov. 15, at the age of 76. He was president of the National Exchange bank, Milwaukee, and had been in banking for 60 years.

* * *

Edward R. Brayton, president and general manager of the Belcher & Loomis Hardware Co., Providence, R. I., and president of the New England Iron and Hardware association, died recently at his home in Providence at the age of 59.

* * *

Hugh Stevenson, 62 years old, an officer of the Crawford-McCrimmon Foundry Co., Brazil, Ind., was killed recently by a train while walking on the tracks near the plant. He was president of a bank at Brazil until a few days before his death.

* * *

John P. Woods, 60 years old, president of the Kupferle Foundry Co., St. Louis, died at his home there Nov. 5. He was born at Selma, Ala., and his first employment was with the Burr Brokerage Co. in St. Louis. In 1907 he joined the Kupferle Foundry Co., and was manager until 1920, when he was elected president.

* * *

W. C. Brown, for the last two years treasurer of the Sun Machinery Co., Newark, N. J., died Nov. 6 at his home there. Although only 32 years old at his death, he was well known in eastern machinery circles. He had been connected with the Simmons Machine Tool Co. of Albany, N. Y., as New York manager for five years.

* * *

Michael J. Feeney, general superintendent of Booth & Flynn, Ltd., Pittsburgh, contractors and builders, died Nov. 6 in that city. He was born in England in 1852 and came to this country when four years old. Mr. Feeney was associated with Pittsburgh interests in the building of oil tanks for the Standard Oil Co., and 40 years ago became affiliated with Booth & Flynn. After three years he was made general superintendent.

* * *

Roy Castle Greenfield, for many years a mechanical engineer and mining expert with the Allis-Chalmers Mfg. Co., Milwaukee, died Oct. 28 at the home of his father in Chicago. He retired from active duty two years ago because of ill health. Mr. Greenfield was manager of the Mexico City offices of the Allis-Chalmers company at the time the revolution broke out, and in 1910 was called to the main offices in Milwaukee. He was widely known for his work in designing and supervising mining machinery installations.

* * *

Bertram Thompson Jones, 43 years old, head of the milling machinery designing department of the Nordyke & Marmon Co., Indianapolis, died recently after an illness of more than four years. Mr. Thompson received his degree of mechanical engineer from Purdue university, Lafayette, Ind. Following his graduation he became associated with the Niles-Bement-Pond Tool Co. at Hamilton, O. In 1913 he was made a department head at the Nordyke & Marmon plant which position he held until ill health forced his retirement.

* * *

Capt. David Shaw, aged 86, a one time leading figure in the steel works of the Pittsburgh district died Nov. 13 at Lakewood, O., where he removed from Pittsburgh about ten years ago.

Captain Shaw came to America from England as a poor boy and settled in Pittsburgh, being employed at the mills of Anderson & Co. He was advanced at the mill and when the company was reorganized about 40 years ago as Anderson, Dupuy & Co. he became a superintendent and partner. The mill soon after was removed to McKees Rocks. This association continued until the formation of the Crucible Steel Co., in 1900, when Anderson, Dupuy & Co. entered the combine. Captain Shaw shortly after retired and bought the Beau Ideal stock farm in Cuyahoga county, O.

News of Societies

FOURTEEN lectures are to be given in connection with the fourth National Exposition of Power and Mechanical Engineering to be held in Grand Central Palace, New York, Nov. 30-Dec. 5. The purpose of these lectures is to present the latest information concerning new developments. Eight of the papers have been announced as follows:

"Steam Prime Movers," by C. H. Berry, associate editor, *Power*.
"Oil and Gas Engineering," by G. A. Richardson, Bethlehem Steel Co.
"Steam Boilers," by E. R. Fish, V. P. Heine Boiler Co., St. Louis.
"Industrial Power Plants," by F. M. Gibson, American Sugar Refining Co., Boston.
"Hydraulic Machinery," by W. M. White, Allis-Chalmers Mfg. Co., West Allis, Wis.
"Heating and Ventilating," by S. E. Dibble, president, American Society of Heating and Ventilating Engineers.
"Standardization," by C. E. Skinner, chairman, American Engineering Standards committee.
"Steam Locomotives," by C. B. Peck, editor mechanical department, *Railway Age*.

Other subjects to be covered in lectures include mechanical power transmission, materials handling in the power plant and materials handling in industry. In addition to this program, a number of motion pictures, collected from governmental and industrial sources, will be shown. Some of these films and their sources are as follows:

"Power: Its Generation in Big Engines of Yesterday and Today; the Construction of the Weymouth Power Station," by Stone & Webster, Inc.
"Water Power," by bureau of mines, Washington, and Westinghouse Electric & Mfg. Co.
"Development of the Locomotive," by General Electric Co.
"Five Big Mechanical Jobs," by General Electric Co.
"Mining and Preparation of Anthracite Coal," by General Electric Co.
"Mining Methods and Preparation of Bituminous Coal," by General Electric Co.
"Refining, Production and Manufacture of Monel Metal," by International Nickel Co.

* * *

Will Discuss Power Saving

Conservation of power in industrial plants will be the general subject under discussion at the Feb. 16 meeting of the Engineers' Club of Philadelphia, Philadelphia. Three sessions will be held on that day. The tentative program includes ten papers on power and related subjects.

* * *

Arranges Monthly Meetings

The Associated Technical Societies of Cleveland, in which nine local sections of national societies are associated with the Cleveland Engineering society, has adopted a plan of monthly meetings, each of which is to be under the auspices of two or more of the sections in the group. The first meeting is to be held on the evening of Nov. 24 and will be in charge of the local sections of the Society of Civil Engineers, the American Society of Mechanical Engineers and the American Welding society.

* * *

Announce Winter Sectional Meeting

Announcement is made that the winter sectional meeting of the American Society for Steel Treating will be held at Buffalo, Jan. 21 and 22. Headquarters will be at the Statler hotel. G. J. Armstrong is chairman of the Buffalo chapter committee which is handling the arrangements. According to the tentative program, a technical session will be held on the morning of the opening day, while the afternoon will be devoted to inspection trips. A dinner meeting will be held at the hotel in the evening. The second day's program will consist of technical sessions in the morning and evening and plant inspection in the afternoon. For Saturday, the day following the meeting, a trip to Niagara Falls is scheduled. The spring sectional meeting of the society will be held in Hartford, Conn., probably early in June.

* * *

Arranges Power Conference

Plans are being perfected by power plant engineers for a large scale power conference, to be held in the Furniture Mart building, Chicago, Jan. 26-29. This conference is scheduled for four days, the first meeting, on Tuesday morning, Jan. 26, dealing with the power resources of the United States. The following morning will be devoted to a consideration of utilization of these resources, while the Wednesday afternoon session will cover trends in economical power generation. Problems of layout, equipment and operation of the power plant of moderate size will be discussed Thursday morning, besides a demonstration of first aid practice. That afternoon is open for inspection trips.

The conference dinner is tentatively planned for Thursday evening, with speakers of prominence to speak on the effects of power generation, distribution and use on the social and economic structure of industry. Friday sessions will be devoted to the use of oil and gas power.

Convention Calendar

Nov. 18-19—National Founders' association. Twenty-ninth annual convention, Hotel Astor, New York. J. M. Taylor, 29 South La Salle street, Chicago, is executive secretary.

Nov. 30-Dec. 4—American Society of Mechanical Engineers. Annual meeting in Engineering Societies' building, New York. Calvin W. Rice, 29 W. 39th street, New York, is secretary.

Dec. 9-11—American Mining congress. Twenty-eighth annual convention in Washington. J. F. Callbreath, 84 Munsey building, Washington, is secretary.

Mining Board Meets

At a recent meeting of the advisory board of co-operative mining of the Carnegie Institute of Technology, each of the coal companies represented agreed to send one man to the school of mining next year. Prior to the business meeting the members were guests of Dr. Thomas S. Baker, president of Carnegie institute.

Chief among the business at this meeting was the report of progress by 11 research fellow investigation problems in coal mining in co-operation with the United States bureau of mines and the advisory board. Election of officers also took place, the old officers being re-elected as follows: W. L. Affelder, chairman; W. H. Glasgow, vice chairman, and Edward Steidle, secretary.

Coke Plant Starts

Coke now is being made at the Perry Iron Co., Erie, Pa., in the new by-product ovens of the Wilputte type, which recently were completed by the Wilputte Coke Oven Corp., New York. The coking installation includes 37 ovens. The coke oven gas is supplied to the city of Erie. Preparations now are being made to put the relined Perry stack in blast within a week or 10 days.

Shipping problems of New England manufacturers were discussed recently in a meeting of the New England Traffic league at the Copley Plaza hotel, Boston. The speakers included Everett Morse, president, Simplex Wire & Cable Co., Boston; William C. Fitch, traffic manager, Southern Pacific railway; C. B. Baldwin, traffic manager, United Shoe Machinery Corp., Boston, and C. M. McDonald, freight claim agent, Boston & Maine railroad.

Industrial Business Changes

MOTT SAND BLAST CO., formerly at 24 South Clinton street, Chicago, has moved its offices and manufacturing activities to a new plant at 4611 Flournoy street, specially equipped for the manufacture of sand blast equipment.

* * *

Automatic Registering Machine Co., Jamestown, N. Y., has changed its name to Automatic Voting Machine Co.

* * *

Standard Sheet Metal Works, 1458 Thirtieth street, Milwaukee, has removed to a new plant at 1405 Thirtieth street.

* * *

Foster Bolt & Nut Mfg. Co., Cleveland, has appointed Hendricks & Class, 30 Church street, district sales agents for its products.

* * *

Multi Electrical Mfg. Co., Chicago, C. T. McDonald president, has bought a plant at 1840 West Fourteenth street, which it will occupy as a plant.

* * *

E. J. Lavino & Co., Philadelphia, dealers in ferroalloys and refractories have opened a branch office at 208 South LaSalle street, Chicago.

* * *

General Motor Truck Co. has moved its general sales offices from Pontiac, Mich., to Detroit, in connection with its plant on Holbrook street.

* * *

W. J. Rainey Inc. has opened a sales office at 328 Oliver building, Pittsburgh, in charge of William Firth, who has been Pittsburgh manager for several years for the Whitney-Kemerer Co.

* * *

Ohio Steel & Supply Co., Cleveland, dealer in sheets, plates, strip steel and other products, has moved its offices to its new warehouse at 5120 Sweeney avenue, where much larger facilities are provided.

* * *

J. H. Williams Co., St. Catherines, Ont., has been bought by the McKinnon Industries and its name changed to the J. H. Williams Co. Ltd. It was founded in 1870 and formerly was known as the Whitman & Barnes Co. It produces small tools, hatchets, hammers and similar articles.

* * *

Davis Boring Tool Co., St. Louis, has established a branch office in the Book building, Detroit, in charge of A. J. Heaney, mechanical engineer, and Jack Mull, sales representative.

* * *

Kirkwood Mfg. Co., Preston, Ont., has taken over the plant and equipment of the Electrical Fittings & Foundry Co. and is adding equipment for increasing production of fittings.

* * *

Stroh-Butler Co., Youngstown, O., dealer in coke, alloys and similar products, has moved its offices from the Stambaugh building to the new First National bank building.

* * *

Dallas Smelting & Refining Co., Dallas, Tex., has opened a branch at Greenville, Tex., under the name of the Greenville Iron & Metal Co., in charge of J. C. Salley.

* * *

The Norton Co., Worcester, Mass., abrasives, has opened a branch office and warehouse at 338 Third avenue, where a stock will be carried. R. O. Anderson will be in charge, assisted by H. T. Canavan, W. S. French, H. H. Steck and W. A. Scheuneman.

* * *

Clark, Fleming & Baehr, 1400 West Twenty-sixth street, has been formed to serve as manufacturers' representatives, by R. H. Clark, W. H. Fleming and A. M. Baehr. All are graduate engineers with manufacturing and sales experience.

* * *

L. A. Young, Industries of Canada Ltd., Windsor, Ont., has taken over the plants of the Ideal Fence & Spring Co. and the Leggett & Platt Spring Bed Co. An addition to the Ideal company's plant will be built and the equipment of the Leggett & Platt plant will be moved there, concentrating production.

* * *

Diamond Chain & Mfg. Co., Indianapolis, Ind., has placed H. I. Markey in charge of a sales office at 1011 Chestnut street, Philadelphia, covering New York territory. Frank Smiley succeeds him in the Cleveland office, 855 Leader-News building.

* * *

P. M. Brotherhood, 25 Church street, New York, dealer in machine tools, cranes and hoists, has opened a branch sales office at Buffalo, N. Y., in charge of P. M. Brotherhood Jr., who has been in charge of the Buffalo office of Manning, Maxwell & Moore, Inc., 7 Ashland avenue.

* * *

J. E. Moss Iron Works, Wheeling, W. Va., and Martins Ferry, O., has moved its branch office at Pittsburgh from 809 Keystone Bank building to 414 Bessemer building where larger quarters and draftsmen's rooms, have been established. George L. Ballou is district sales manager.

* * *

Henry Disston & Sons Inc., Phiadelphia, manufacturer of saws has moved its Australian branch into a new factory and sales office building at Camperdown, Sydney, New South Wales. Manufacture of saws and knives from steel furnished from the Philadelphia works will be carried on and repair work will be done.

* * *

Mayo Equipment Co. has been organized to take over the business of the West Virginia Grinding & Machine Co., Huntington, W. Va., and an interest in the plant of the Joyce-Gridland Co., Dayton. John C. Mayo, Alex Cameron and E. G. Livesay, the latter former manager of the West Virginia Grinding & Machine Co., head the new company, which will manufacture devices for machine shops and garages, inventions of the latter.

Warehouse Prices Continue To Rise

Sheet Quotations Again Advanced—Buying Above October

PRICES in the iron and steel warehouse market continue to gain strength. Sheets, formerly the weak spot, are stronger, with advances in New York, and St. Louis, and firmness in other districts.

Trading in the New York metropolitan warehouse district has reacted slightly from a week ago. Business still is good, and in galvanized and black sheets, prices have been advanced. Galvanized is now quoted at 5.35c to 5.50c and black at 4.35c. Blue annealed sheets are unchanged. Strip steel is higher, holding at 6.25c.

Buffalo warehouse demand is above average proportions for the season. Prices are steady and unchanged.

Prices at Pittsburgh warehouses are due for a rise of $2 a ton shortly, but no official announcement had been made early in the week.

St. Louis warehouse business continues brisk. Recent improvements in demand for sheets has continued, and the tone in that particular is better than for a number of months. Trend of prices is upward, with No. 28 black annealed sheets and No. 28 galvanized sheets higher at 4.60c and 5.70c.

Square tapped or blank nuts have been advanced from 3.50c off to 3.25c off, by Chicago warehouses. Hexagons have been advanced also.

Jobbers at Portland, Oreg., and Seattle, have advanced prices $5 a ton on blue, black and galvanized sheets. The same increase was made on cold-finished steel.

One of the largest jobbers in Cleveland territory claims 1925 business to date is about 33 per cent above 1924. New mill extras on cold-finished stock and an advance on screw stock quality are expected to be reflected in warehouse quotations before the end of the week.

A large Philadelphia warehouse reports that it handled more tonnage during the week ended Nov. 7 than in any week since July 21, 1923.

Steel bar prices are firmer at Philadelphia, most business going at 3.20c. Concrete bars are higher, 3.00c to 3.25c being named.

Detroit warehouse demand continues heavy. Cold-rolled strip and flat wire have been advanced $3 a ton by operators here, the new price being 6.20c per 100 pounds. Further advances are expected, especially on galvanized steel sheets.

Quotations at Cents Per Pound at Leading Market Centers

STEEL BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Cleveland	3.10c
Detroit	3.15c
Los Angeles	3.15c
New York	3.24c
Philadelphia	3.05c to 3.20c
Pittsburgh	2.90c
Portland	2.85c
San Francisco	3.30c
Seattle	3.25c
St. Louis	3.15c
St. Paul	3.25c

IRON BARS

Boston	3.265c
Buffalo	3.30c
Chicago	3.00c
Cincinnati	3.30c
Detroit	3.15c
New York	3.24c
Philadelphia	3.05c to 3.20c
St. Louis	3.25c

REINFORCING BARS

Boston	3.265c to 3.50c
Buffalo	3.30c
Chicago, billet	2.60c
Chicago, rail steel	2.00c to 2.10c
Cincinnati	3.30c
Cleveland	2.85c to 3.10c
Detroit	3.15c
Los Angeles, C. L.	3.05c
Los Angeles, L. C. L.	3.30c
New York	2.95c to 3.15c
Philadelphia	3.00c to 3.25c
Pittsburgh	2.50c to 2.60c
San Francisco, C. L.	3.35c
San Francisco, L. C. L.	3.80c
Seattle	3.50c
Youngstown	2.50c

STANDARD STRUCTURAL SHAPES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland	3.20c
Detroit	3.25c
Los Angeles	3.15c
New York	3.34c
Philadelphia	2.80c to 3.20c
Pittsburgh	3.00c
Portland	2.85c
San Francisco	3.30c
Seattle	3.35c
St. Louis	3.25c
St. Paul	3.35c

PLATES

Boston	3.365c
Buffalo	3.40c
Chicago	3.10c
Cincinnati	3.40c
Cleveland, ¼-inch and thicker	3.20c
Cleveland, 3/16-inch	3.425c
Detroit	3.25c
Detroit, 3/16-inch	3.45c
Los Angeles	3.15c
New York	3.34c
Philadelphia	2.80c to 3.20c
Philadelphia, 3/16-inch	3.00c to 3.40c
Pittsburgh	3.00c
Portland	3.25c
San Francisco	3.30c
Seattle	3.25c
St. Louis	3.25c
St. Paul	3.35c

NO. 10 BLUE ANNEALED SHEETS

Boston, 3/16-inch	3.915c
Buffalo	3.80c
Chicago	3.50c
Cincinnati	3.60c
Cleveland	3.15c
Detroit	3.65c
Los Angeles	3.70c
New York	3.89c
Portland	4.50c
Philadelphia	3.35c
San Francisco	3.70c
Seattle	4.50c
St. Louis	3.60c
St. Paul	3.75c

NO. 28 BLACK SHEETS

Boston	4.95c
Buffalo	4.40c
Chicago	4.10c
Cincinnati	4.55c
Cleveland	3.95c
Detroit	4.25c
Los Angeles	4.65c
New York	4.35c
Philadelphia	4.55c
Portland	5.50c
San Francisco	4.65c
Seattle	5.50c
St. Louis	4.60c
St. Paul	4.35c

NO. 28 GALVANIZED SHEETS

Boston	6.00c
Buffalo	5.45c
Chicago	5.25c
Cincinnati	5.65c
Cleveland	5.10c
Detroit	5.25c
Los Angeles (corr. 26 ga.)	5.75c
New York	5.35c to 5.50c
Philadelphia	5.75c
Portland	6.50c
San Francisco	5.75c
Seattle	6.50c
St. Louis	5.70c
St. Paul	5.50c

BANDS

Boston	4.015c
Buffalo	4.05c
Chicago	3.65c
Cincinnati	3.95c
Cleveland	3.85c
Detroit	3.80c
Los Angeles	4.25c
New York	3.99c
Philadelphia	3.90c
Pittsburgh	3.60c
Portland	4.25c
San Francisco	4.15c
Seattle	4.25c
St. Paul	3.90c

HOOPS

Boston	5.50c
Buffalo	4.05c
Chicago	4.15c
Cleveland	3.85c
Detroit	4.30c
New York	4.49c
Philadelphia	4.25c
Pittsburgh	3.60c
Seattle	5.00c
St. Paul	4.40c

COLD FINISHED STEEL

	Rounds and hexagons	Flats and squares
Boston	3.95c	4.45c
Buffalo	3.95c	4.45c
Chicago	3.60c	4.10c
Cincinnati	3.85c	4.35c
Cleveland	3.80c	4.30c
Detroit	3.75c	4.25c
Los Angeles	5.25c*	.....
New York	4.00c	4.50c
Philadelphia	3.90c	4.40c
Pittsburgh	3.60c	4.10c
Portland	5.00c*	.....
San Francisco	3.75c*	.....
Seattle	5.00c*	.....
St. Paul	4.05c*	.....

*Rounds only.

COLD ROLLED STRIP

Boston, .100 inch, 500 lb. lots	6.30c
Buffalo	6.65c
Chicago	7.15c
Cincinnati	7.15c
Cleveland, over 500 pound lots	5.95c
Detroit	6.20c
New York	6.25c
Philadelphia	6.10c
Pittsburgh	6.30c

FOREIGN IRON AND STEEL
New York, duty paid

Swedish hollow drill steel	15.00c
Swedish iron bars round	6.75c
Flats and squares	7.00c

WELDED PIPE
Discounts from warehouse. New York City
Standard Steel Pipe
WROUGHT STEEL PIPE

	Black	Galvanized
¼-inch butt	—23	+21
¼ to ⅜-inch butt	—36	— 3
½-inch butt	—46	—29
¾-inch butt	—51	—37
1 to 3-inch butt	—53	—39
2-inch lap	—40	—22
2½ to 6 inch lap	—48	—35
7 and 8-inch lap	—44	—17
9 and 10-inch lap	—38	—14
11 and 12-inch lap	—37	—12

WROUGHT IRON PIPE

	Black	Galvanized
¼ to ⅜-inch butt	+44%	+78%
½-inch butt	— 4	+19
¾-inch butt	—11	+ 9
1 to 1½-inch butt	—14	+ 6
2-inch lap	— 5	+14
2½-inch lap	— 9	+ 9
3 to 6-inch lap	— 3	+ 6
7 to 12-inch lap	— 3	+16

Construction and Enterprise

Concise and Timely Business Building Opportunities from the Field of Industry

Where additional information is presented, reference is made to date of issue in which previous item appeared.

BERKELEY, CALIF.—Mann Mfg. Co. has let contract to the Austin Co. for a machine shop 120x180 feet.

HARTFORD, CONN.—Whitlock Coil Pipe Co., South street, Elmwood, a suburb, will build a 1-story boiler and plate shop 120 x 160 feet. Standard Erecting Corp. has the general contract.

NEW HAVEN, CONN.—Hedason Mfg. Co., 1041 State street, will build a 1-story addition 40 x 136 feet to increase its production of player piano hardware. M. J. Gibbud Co., 100 Water street, has the general contract.

NEW HAVEN, CONN.—Sargent & Co., Water street, manufacturer of building hardware, is building a 1-story addition 32 x 131 feet, part of which will be used as a sand blast department. National Construction Co., 151 Court street, has the contract.

WATERBURY, CONN.—American Brass Co. will build a 3-story addition 60 x 135 feet. Tracy Bros. Co. has the general contract.

WATERBURY, CONN.—Reorganization of the Connecticut Brass & Mfg. Co., now in charge of Maurice E. Mayo, receiver, is being worked out and production probably will be resumed shortly.

WAYCROSS, GA.—Cadenhead Automatic Alarm Co. has been incorporated with $25,000 capital by T. M. Cadenhead, and J. W. Waters.

AURORA, ILL.—Aurora Pump & Mfg. Co. will build and equip a 1-story addition to its plant.

CHICAGO—James Mraz, 5413 Winthrop avenue, will build a 2-story garage and machine shop 100x150 feet. General contract to Everett Winters Co., 1024 Book building, Detroit.

CHICAGO—Dale Valve Co., Andrew R. Dale president, 1923 Carroll avenue, will build a 2-story addition 100x120 feet. Joseph C. Llewellyn, 38 South Dearborn street, is architect.

CHICAGO—Multi Electrical Mfg. Co., 1848 West Fourteenth street, has bought adjoining property at 1840 to 1846 West Fourteenth street and will remodel and equip it as an extension of its plant. C. T. McDonald is president.

CHICAGO—Free Strom Heating Co., 12032 Lafayette avenue, has been incorporated with $20,000 capital to manufacture heaters, stoves, furnaces and power plants by Abel Levy, V. E. Crosell and Arthur Freestrom. Frisch & Frisch, 6 North Clark street, are correspondents.

CHICAGO—Advertising Metal Display Co., 1001 Washington boulevard, has been incorporated with $25,000 capital to manufacture display devices and novelties by Walter L. Thompson, George R. Lund and John Jung. Edwin J. Raber, 160 North LaSalle street, is correspondent.

CICERO, ILL.—Bee Mack Furnace Co., Twenty-eighth street and Sixty-first avenue, has been incorporated with $20,000 capital to manufacture conveyor furnaces for ceramic products by A. C. Wild and Harry L. Jones. Townley, Wild, Campbell & Clark, 105 South LaSalle street, are correspondents.

FREEPORT, ILL.—W. T. Rawleigh Co. will build a steam power house in connection with its plant.

MAYWOOD, ILL.—Hewitt Co., South Ninth street, will build a 1-story foundry addition 42 x 60 feet. Truscon Co., 165 East Erie street, Chicago, has the general contract.

MOLINE, ILL.—Velie Motors Corp. is buying and installing equipment for the manufacture of front and rear axles for its automobiles, equipped with four-wheel brakes.

INDIANA HARBOR, IND.—Standard Forgings Co., D. R. Carnell, is having plans made for a foundry addition.

WABASH, IND.—George M. Diehl Machine Works is building a 2-story addition, the first of three buildings to give larger capacity.

ANAMOSA, IA.—State board of control, Des Moines, will build garage, machine shop and soap factory at state reformatory at Anamosa.

AUDUBON, IA.—Iowa Light, Heat & Power Co. will remodel light plant and install two new boilers and steel smoke stack.

CHARLES CITY, IOWA—Hart Tractor Co. will rebuild the burned portion of its plant.

FORT DODGE, IOWA—Fort Dodge Iron & Metal Co. will build an addition, one story, 35 x 144 feet. M. J. Grosz, Fort Dodge, has the general contract.

COFFEYVILLE, KANS.—Acme Foundry & Machine Co. is having plans made for a 1-story foundry addition.

BALTIMORE—American Oil Burner Co. has been incorporated with $50,000 capital by William P. Pennington and George Harris.

BALTIMORE—Consolidated Gas, Electric Light & Power Co., Herbert A. Wagner president, Lexington building, is building the first unit of its steam-electric generating station. Three other units will be built later.

BALTIMORE—Blue Diamond Mortar Co., Taylor avenue and Twenty-fifth street, will build a 1 and 3-story plant 60 x 110 feet, which will require considerable conveying and grinding equipment. J. A. Hall is president.

BALTIMORE—Southern Can Co., E. Everett Gibbs president, 717 South Wolfe street, has bought from the American-Canadian Properties Co. the plant of the Columbia Graphophone Factories Corp., East Biddle street, and will use about one-third of the structure, the remainder being leased out.

FALL RIVER, MASS.—Fall River Gas Works Co., Madison avenue, will build a 1-story machine and repair shop 55 x 110 feet. Stone & Webster, 147 Milk street, Boston, are engineers.

NORTH HADLEY, MASS.—Arthur C. Howe, cutlery maker, suffered a loss by fire recently in his machine shop. The plant will be rebuilt.

SHELBURNE FALLS, MASS.—Pratt Drop Forge & Tool Co., a subsidiary of the Goodell-Pratt Co., will build a 1-story addition to its forge plant.

DETROIT—Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has bought a site on which it will build a warehouse, service department and general office.

DETROIT—American Metal Products Co., 6431 Epworth boulevard, will build a 2-story addition 40 x 150 feet. General contract to Bennage & McKinstry Co., Morgan building.

FLINT, MICH.—Buick Motor Co., H. H. Bassett president, Hamilton avenue, will build a 1-story addition 90x300 feet.

FLINT, MICH.—Flint Foundry Co. is having plans made for rebuilding its foundry, recently burned.

GRAND RAPIDS, MICH.—Blackmer Rotary Pump Co., 1807 Century avenue, is having plans made for a 1-story foundry.

GRAND RAPIDS, MICH.—American Brass Goods Co. will begin construction in a short time of its first factory unit here.

JACKSON, MICH.—Riverside Forge & Machine Co. will build a 1-story addition 20 x 40 x 45 x 125 feet. General contract has been let to the Austin Co.

LANSING, MICH.—Lakey Foundry Co. will build a plant addition to house 30 core ovens and other foundry departments.

LANSING, MICH.—Federal Drop Forge Co. is installing a 3500-pound drop hammer, the largest in its battery.

MANKATO, MINN.—Bids are being taken by F. W. Bates, city clerk, until Nov. 23, for pumping equipment as follows: 1 high service unit of 2000 gallons per minute capacity, 1 low service unit of 1600 gallons per minute capacity and one deep well impeller or turbine pump of 700 gallons per minute capacity, piping, switchboard and wiring. Louis P. Wolff, 903 Globe building, St. Paul, is consulting engineer.

MINNEAPOLIS, MINN.—Plans are being made by N. W. Elsberg, city engineer, for a river terminal at the foot of the Washington avenue bridge to cost $225,000. The project includes a warehouse at 2½ street passed by double tracks, one nearest river to carry locomotive crane to unload freight from boats.

ST. PAUL, MINN.—Motor Power Equipment Co., W. W. Logan vice president, 2512 University avenue, will build a 2-story factory building 131x270 feet.

ST. LOUIS—Hicks Retinning & Mfg. Co. has been incorporated with $15,000 capital by S. H. Hicks and C. C. Fremon.

ST. LOUIS—Liberty Foundry Co., 5000 South Thirty-eighth street, has awarded a contract to the Austin Co., Cleveland, for a 1 and 2-story foundry building 90 x 161 feet.

ST. LOUIS—Automatic Speed Wrench Co. has been incorporated with $100,000 capital to manufacture automatic wrenches by Henry D. Martin, Louis Marth and George J. Beck-

man, Frank J. Quinn, 900 Times building, is attorney.

ST. LOUIS—Schulze Duplicator Co. has been incorporated with $10,000 capital to manufacture duplicators and other office specialties by Henry J. Schulze, Edward H. Engler and Vernon C. H. Schulze, Henry H. Oberschelp, 506 Olive street, is attorney.

BILLINGS, MONT.—Northern Pacific railroad, Fifth and Jackson streets, St. Paul, Minn., will remodel freight house and enlarge loading platform to cost $15,000.

BEATRICE, NEB.—J. H. Von Steen Co., fence manufacturers, will rebuild factory destroyed by fire, 2 stories and bas, brick, about $40,000.

OMAHA, NEB.—Metropolitan Utilities will build 2-story reinforced concrete and brick warehouse and shop building at Twentieth and Center streets to cost $225,000. T. A. Lusen, city waterworks department, is general manager.

BELLEVILLE, N. J.—Beach Carburetor Co. has been incorporated with $150,000 preferred stock and 10,000 shares common no par to manufacture automotive specialties by Ralph H. Beach, Belleville; William B. Lord, New York, and Walter V. Wightman, West New Brighton.

CAMDEN, N. J.—Universal Humidifying Co. has been incorporated with $50,000 capital to manufacture cooling process apparatus with $50,000 preferred stock and 2500 shares common no par value. New Jersey Corp. Guarantee & Trust Co. is attorney.

DOVER, N. J.—Eastern Iron Ore Co. has been incorporated with $200,000 capital by Harry M. Roche, Martin C. Haven and Dr. J. Willard Farrows, to buy and operate the Beach Glen iron ore mines and concentrating mill at Rockaway, N. J.

IRVINGTON, N. J.—New Jersey Safety Razor Blade Mfg. Co. has been incorporated with $75,000 preferred and 500 shares common stock no par value by Arthur Niepenberg and Michael D. Finkelstein. Sellick J. Mindes, Newark, is attorney.

MOUNT HOLLY, N. J.—MacFarlane Train Control Co. has been incorporated with $100,000 capital to manufacture railroad equipment by Norman W. Harker, Miriam M. Harker and Sallie W. MacFarlane. Norman W. Harker, Mount Holly, is attorney.

NEWARK, N. J.—National Lock Washer Co., 40 Hermon street, will build a 1-story addition 47 x 49 feet. General contract to Enstice Bros., 111 Academy street.

NEWARK, N. J.—Oxweld Acetylene Co., 680 Frelinghuysen avenue, manufacturer of welding apparatus will build a 1-story addition to its plant.

NEWARK, N. J.—Contract has been awarded by the Newark Wire Works for a 1-story addition, 32 x 80 feet, the business going to the Fatzler Co.

NEWARK, N. J.—F. N. DuBois Co. has let contract to the Austin Co., Cleveland, for five buildings from 90 x 160 feet to 50 x 120 feet.

PATERSON, N. J.—Automatic Oil Burner Corp. has been incorporated with $50,000 capital to manufacture oil burning devices by Philip K. Scheuer, Joseph Kennedy and Elsie Horridge. Milton Schamach, Paterson, is attorney.

PLAINFIELD, N. J.—The former plant of the Standard Aero Co. has been leased by the Lawson Aircraft Co., New York, which after completing various alterations will engage in the manufacture of aircraft.

TRENTON, N. J.—National Mfg. Co., a recently incorporated company, will manufacture a sealing and wrapping device.

ALBANY, N. Y.—Empire Plating Works, 77 Madison avenue, has plans for a 3-story addition 25 x 35 feet.

BROOKLYN, N. Y.—Krischers Mfg. Co., 265 Calyer street, manufacturer of metal specialties, will build a 3-story addition 100 x 165 feet.

BROOKLYN, N. Y.—Lasky Motor Co., Leonard street and Montrose avenue, will build a 2-story service and repair building 100 x 110 feet.

BUFFALO, N. Y.—A syndicate headed by G. W. Pfohle Jr., 61 Peckham street, is having plans made for a 1-story plant for the manufacture of automobile bodies.

BUFFALO, N. Y.—Houde Engineering Corp., 1392 West avenue, maker of automotive equipment, will build a new plant at 808 Northland avenue.

BUFFALO, N. Y.—Korrect Air Meter Corp. has been incorporated with 1000 shares common stock no par value by L. A. Halstead, T. H. Moffit and E. H. Baker. Van Arsdale, Hofheins & Vandermuelens, Buffalo, are attorneys.

CORTLAND, N. Y.—Brockway Motor Truck Co., will build a 1-story factory addition 74x 150 feet. General contract to Marshall Construction Co.

LOCKPORT, N. Y.—Covert Gear & Mfg. Corp., A. A. Gloetzner president and general manager is financing considerable expansion to enlarge its production of gears.

MOUNT MORRIS, N. Y.—Mount Morris Valve Corp., Lawrence Bellinger manager, will build a 1-story factory 45x190 feet at Mills and Conlon avenues.

NEW YORK—Bronx Builders Machine Co. Inc., 680 East 133rd street will build a 1-story plant 37 x 100 feet.

NEW YORK—Rees & Stindt Machine Works, 534 West Fifty-eighth street, suffered considerable loss by fire recently and will rebuild.

NEW YORK—Moore & Landseidel, Third avenue and 148th street, will build a 5-story automobile service and repair building 180 x 180 feet.

NEW YORK—Circle Metal Products has been incorporated with $10,000 capital by J. J. Moss and A. Unger, L. Rocklin, 101 Essex street, is attorney.

NEW YORK—Comac Metal Novelty Co. has been incorporated with $10,000 capital by M. Marguiles, M. Kaplan and S. Lewin. S. Fischer is attorney.

NEW YORK—Bias Titeseam Machine Co. has been incorporated with 200 shares no par value by F. A. Turner, H. M. Bunker and P. Gardner. Putney, Twombley & Putney, 2 Rector street, are attorneys.

NEW YORK—Automatic Fuel Control Co. has been incorporated with $100,000 capital to manufacture motors by E. F. Gianattasio, H. E. Cozzens and T. F. Powers. W. L. Post, 50 Church street, is attorney.

NEW YORK—Continental Hardware Corp. has been incorporated with $10,000 capital by C. Menzer, H. Menzer and S. S. Cassard. R. J. Culanan, 49 Sterling street, Brooklyn, is attorney.

NEW YORK—Hi-Heat Gas Co. has been incorporated with 100 shares $100 each and 1000 common no par value by J. Mertens Jr. and J. J. Callahan. K. A. Gallagher, 21 East Fortieth street, is attorney.

NEW YORK—Metal Store Front Corp. has been incorporated with 200 shares no par value to manufacture metal devices for architectural use by R. E. Lee, L. E. Smith and A. J. Weglein, Hawkins, Delafield & Longfellow, 20 Exchange place, is attorney.

TONAWANDA, N. Y.—Buffalo Electric Chemical Co., C. A. Buerth president, 220 West Huron street, Chicago, is having plans made for several factory buildings on River road, Tonawanda.

AKRON, O.—Akron Standard Mold Machine Co., 1624 Englewood avenue, will build a 1-

Iron and Manganese Ores and Minerals

Iron Ore

LAKE SUPERIOR ORES

Per Gross Ton Lower Lake Ports

Old range bessemer, 51½ per cent iron	$4.55
Mesabi bessemer, 51½ per cent iron	4.40
Old Range nonbessemer, 51½ per cent iron	4.40
Mesabi nonbessemer, 51½ per cent iron	4.25

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic 53 to 63 per cent	9.00 to 10.00
Copper free low phosphorus 53 to 65 per cent	nominal

FOREIGN IRON ORE

Cents per unit, f.o.b. cars Atlantic ports

Spanish low phosphorus, 52 to 54 per cent	9.00 to 10.00
Algerian low phosphorus, 52 to 54 per cent	9.00 to 10.00
Riff low phosphorus, 65 to 66 per cent	9.50 to 10.00
Swedish and Norwegian low phosphorus, 68 per cent	11.00 to 11.50
Swedish foundry or basic, 66 to 68 per cent	9.00 to 10.00
Spanish foundry or basic, 50 to 54 per cent	8.50 to 9.00
Algerian foundry and basic, 50 to 54 per cent	8.50 to 9.00

Manganese Ore

Prices do not include duty at rate of 1 cent per pound of metallic manganese contained.

Brazilian, minimum 47 per cent.....nominal
Indian minimum 47 per cent.....nominal
Caucasian, 53 to 55 per cent.....
....Washed, 43 to 45 cents c.i.f. tidewater

Fluor Spar

85 and 5 per cent grade

Washed gravel, Kentucky and Illinois mines, per net ton..	$16.00
Washed gravel, imported duty paid eastern tidewater, per net ton	16.50 to 17.50

story factory building 60x68 feet. General contract to J. V. Costigan, 36 Edgerton road.

CINCINNATI—Applegate & Mohs Co., sheet metal products, has let a contract to the H. K. Ferguson Co., Cleveland, for an addition 60 x 120 feet.

CLEVELAND—American Automatic Connector Co., 118 Noble Court, M. A. Barber president and C. G. Feil secretary, are planning erection of a plant to manufacture car couplers.

CLEVELAND—Globe Steel Barrel Co. has been incorporated with $50,000 capital by Leonard Danaceau, Arthur Krause, Herman E. Kohen, William F. Waldeisen and Saul S. Danaceau.

CLEVELAND—Titan Machine & Mfg. Co., 1973 East Seventy-ninth street, J. Restel manager, manufacturer of cylinder hones and honing equipment, is making additions to increase the floor space 200 per cent. A new office is also being erected.

COLUMBUS, O.—Standard Oil Co. of Ohio, A. Palmer Coombs president, East Ohio Gas building, Cleveland, will build a 1-story garrage and repair shop 80x80 feet. General contract to E. Elford, 555 South Park avenue, Columbus.

NORWOOD, O.—American Laundry Machinery Co., R. M. Burton president, Section street, will build a 1 and 3-story factory and office building 142x339 feet.

UPPER SANDUSKY, O.—National Steam Pump Co. will build a 1-story addition 40 x 80 feet.

ZANESVILLE, O.—Federal Radiator & Boiler Co., Theodore F. Schlade manager, is having plans made for a 1-story foundry 100 x 200 feet.

OKLAHOMA CITY, OKLA.—J. B. Klein Iron & Foundry Co., 1006 West Second street, will build an addition 75 x 125 feet.

ALLENTOWN, PA.—Bonney Forge & Tool Works, J. E. Durham Jr., vice president, is having sketches made for a mill building addition.

CHESTER, PA.—Penn Steel Casting Co. will rebuild its burned pattern shop.

GROVE CITY, PA.—Bessemer Gas Engine Co., J. P. Henry superintendent, will add considerable equipment to its shops.

NAZARETH, PA.—General contract for a 3-story plant addition, 50 x 70 feet, has been awarded by the Nazareth Cement Co. to the Purrell Engineering & Construction Co., 513 West Jackson boulevard, Chicago. Ford, Beacon & Davis, Inc., 115 Broadway, New York City, is engineer, and in this capacity has awarded some of the equipment, including an electric crane.

PHILADELPHIA — Kingsbury Machine Works, Inc., 4320 Lackawanna street, will build an addition to its plant. S. D. Milner, 1117 Foulkrod street, has the general contract.

PHILADELPHIA—Heintz Mfg. Co., Olney avenue and Front street, steel automobile body builder, is building a 1-story addition to its plant.

PHILADELPHIA—Philadelphia Engineering Co., 308 Walnut street, specialty manufacturer, will build a 1-story plant 50 x 200 feet. Clarence E. Wunder, 1520 Locust street, is architect.

PHILADELPHIA—The Philadelphia Electric Co., Tenth and Chestnut streets, is arranging for a common stock issue of more than $14,000,000, the greater portion of the proceeds of which will go for new improvements.

PITTSBURGH—Mantle Engineering Co., recently organized, will manufacture combustion control devices and recuperators.

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. works

Pennsylvania, No. 1	$43.00 to 46.00
Pennsylvania, No. 2	35.00 to 40.00
Ohio, No. 1	43.00 to 46.00
Ohio, No. 2	38.00 to 40.00
Illinois, No. 1	40.00 to 43.00
Illinois, No. 2	35.00 to 38.00
Kentucky, No. 1	43.00 to 45.00
Kentucky, No. 2	40.00 to 43.00
Missouri, No. 1	41.00 to 43.00
Missouri, No. 2	35.00 to 38.00
Maryland, No. 1	43.00 to 47.00
Maryland, No. 2	39.00 to 42.00

SILICA BRICK

Pennsylvania	40.00
Chicago	49.00
Birmingham	48.00 to 52.00

MAGNESITE BRICK

Per Net Ton Seaboard Base

9 x 4½ x 2½	65.00

CHROME BRICK

(Per Net Ton)

9 x 4½ x 2½	45.00 to 48.00

SELLERSVILLE, PA.—Lyons Artificial Silk Co. will build a power plant and machine shop in connection with its new plant at Pennsville, N. J. J. Harold Felton is president.

UNIONTOWN, PA.—Richmond Radiator Co., Lloyd G. McCrum president, is building an addition 40x136 feet to house four enameling ovens and will add a molding circle for production of built-in bath tubs, increasing its capacity one-third. A warehouse and storeroom with 22,000 square feet of floor space has also been authorized.

WEST PITTSTON, PA.—The American Gas & Electric Co. has awarded a contract for structural steel for a new power plant here to the American Bridge Co. The cranes for this project are understood to have been placed with the Whiting Corp.

WILKES-BARRE, PA.—A $100,000 garage and repair shop will be erected here by the Keystone Motor Car Co.

MEMPHIS, TENN.—Automatic Auto Lift Inc., has been incorporated with $100,000 capital by Albert C. Menges and Henry Gillman, 372 Angelus street.

DALLAS, TEX.—Brawman Piston Ring Mfg. Co. has been incorporated with $50,000 capital by G. H. Brawman and L. M. Manley, 3212 Bowen street.

HOUSTON, TEX.—Reed Roller Bit Co., Mack street and Avenue Q, is planning extensive additions and improvements and has increased capital from $300,000 to $1,000,000 to finance them.

NORFOLK, A.—Atlantic Machine Works, Inc., has been incorporated with $10,000 capital to manufacture mill supplies by J. W. Stickley and Frank H. Masi, 119 West Twenty-fifth street.

BELLINGHAM, WASH. — Bloedel-Donovan Lumber Mills Co. has decided to electrify its entire plant, following a recent explosion of a large flywheel.

SEATTLE, WASH.—Northwest Rolling Mills Corp. has been incorporated with $150,000 capital by A. Goldberg and R. B. Faller.

SEATTLE.—Pacific Knife & Saw Mfg. Co., 1129 L. C. Smith building, has been incorporated with $30,000 capital by A. R. McElhoe, M. J. Benn and L. C. Bowman.

SEATTLE—Ballard Drop Forge Co., 1145 West Forty-sixth street, V. A. Marshall president, will build a 1-story machine shop replacing its burned plant.

CHARLESTON, W. VA.—Black & White Taxi Co. will equip a machine and repair shop in its newly acquired building 25 x 100 feet on Summers street.

APPLETON, WIS.—C. R. Meyer & Sons Co., Oskosh, Wis., has taken the contract to build a machine shop and filter house, 80x104 feet, 30 feet high, for the Fox River Paper Co. here. It will cost about $60,000. E. L. Small is chief engineer.

BELOIT, WIS.—Contracts have been let by G. H. Clark for a new public garage and service station, 60 x 120 feet, at 527 East Grange avenue. The cost is estimated at $30,000.

CHIPPEWA FALLS, WIS.—The F. A. Bigler Mfg. Co., auto trunks and accessories, will build an additional story, about 100x120 feet, at a cost of $45,000. Fred A. Bigler is president.

DE PERE, WIS.—Hudson Mfg. Co., Main street, E. Abendroth manager, will build a plant 62 x 120 feet for the manufacture of dairy barn equipment and ventilators.

FOND DU LAC, WIS.—The Voell Auto Sales, Inc., Cadillac and Hudson-Essex distributors, will build a new garage and service shop, 100x150 feet, part 2-story and basement, on a new site on South Main street, at the city limits. The site is 275x620 feet.

KENOSHA, WIS.—Additional motor-driven machine tool and stamping equipment will be purchased by the Igo Mfg. Co., automobile bumpers, which is greatly enlarging its output.

KOHLER, WIS.—The general contract for building a brass manufacturing building, 80 x 200 feet, for the Kohler Co., has been let to H. Schmitt & Sons, Inc., 430 Farwell avenue, Milwaukee. Architects Brust & Philipp, 405 Broadway, Milwaukee, are in charge.

MADISON, WIS.—A public garage and repair shop, 65 x 105 feet, will be built at 2611 Monroe street by the Wingra Auto Co., now occupying temporary quarters in the Gay building.

MANITOWOC, WIS.—Aluminum Goods Mfg. Co. will build a 5-story addition 137x148 feet to its works at Two Rivers, Wis.

MENASHA, WIS.—Anton Neilsen & Son, Neenah, Wis., are the successful bidders for erecting a tool house, repair and service shop and garage for the city of Menasha which will cost about $25,000 with tools, etc.

MILWAUKEE.—Husky Wrench Co., 928 Sixteenth avenue, Siegmund Mandl vice president, is preparing to build an addition.

MILWAUKEE—The Standard Sheet Metal Works, 1458 Thirtieth street, is moving into its new plant at 1405-1411 Thirtieth street, where it will increase its capacity fourfold.

MILWAUKEE—Waltzer & Kern, 415 Prospect avenue, will build a new garage and service station, 80 x 125 feet, at 425-427 Kenilworth place, at a cost of $50,000.

MILWAUKEE.—George J. Meyer Mfg. Co., 516 Clinton street, will build an additional story on its plant, 42x140 feet and 34x100 feet, to enlarge capacity for building special machinery for bottling plants.

MILWAUKEE—A. 1-story addition, 127 x 104 feet, of brick and steel, will be erected immediately for the Claus Automatic Gas Cock Co. at its plant, Booth and Becker streets.

MILWAUKEE.—The Badger Specialty Mfg.

Co. has been incorporated by Henry F. Vollmer, Lee R. Whitney and Fred J. Guetzschow to manufacture metal articles and materials. The capital stock is $10,000.

MILWAUKEE—The Milwaukee branch of the Packard Motor Co. at Thirty-six and Grand avenue will build a 70 x 200-foot addition to obtain adequate service floor and repair shop space. N. P. Hanson is manager.

MILWAUKEE.—A permit has been granted to the Koehring Corp., concrete mixers, Thirty-first street and Concordia avenue, to build a fireproof storage house, 66x300 feet, of steel and concrete.

MILWAUKEE.—General Metal & Refining Co. will build a plant 90x135 feet at Thirty-second avenue and South Pierce street, for smelting and refining metals. Departments for producing white metals and aluminum and its alloys will be added.

MILWAUKEE—F. X. Sommers, coppersmith, 3216 Vliet street, has incorporated the business as Sommers & Sons Co., capital stock $10,000. The plant will be enlarged to take care of work in other metals as well. C. J. and A. M. Sommers are the other incorporators.

MILWAUKEE.—Plans have been completed by the Wisconsin Electrical Mfg. Co., 453 East Water street, for its new manufacturing plant at 1101-1103 Clybourn street, to be 30x100 and 45x90 feet, and contracts will be let at once. W. H. Fernholz is president.

MILWAUKEE—A charter has been granted to the Milwaukee Power Washer & Coaster Co., capital stock $15,000, to manufacture power washing machines, toy carts and wagons and similar goods. Incorporators are August A. Pokrop Jr., E. A. Brunk and George Kopling.

MILWAUKEE.—The Osmond-Jordan Co., 182 Sixth street, distributor of the Jordan automobile, will move about Jan. 1 to a new 3-story garage and repair shop, 60x120 feet, at 556-560 Jackson street, to be built by the Martin estate at a cost of $65,000. N. E. Osmond is president.

MILWAUKEE.—Damage of $25,000 was sustained by the Tures Mfg. Co., 392-394 Sixth street, by fire on Oct. 26. The concern manufactures gasoline, electric and gas fixtures, lighting systems, etc. The building will have to be rebuilt and the major share of the machinery replaced. George Rack is works manager.

OSHKOSH, WIS.—The C. R. Meyer & Sons Co., local contractors, have been awarded the entire work of building the new vocational school and recreation building here, which will cost about $300,000. Architects Auler & Jensen, Oshkosh, made the plans.

RACINE, WIS.—Contracts have been placed by the F. J. Greene Engineering Works, Douglas avenue, for a 1-story shop addition, 80 x 145 feet, costing about $45,000.

RACINE, WIS. — A charter has been granted to the Fisher Electrical Mfg. Co. to build devices and appliances of all kinds. The capital stock is $10,000 and the incorporators are William H. Fisher, Ernest Breese and J. C. Docter.

RACINE, WIS.—Articles of incorporation have been filed by the Gedemer Tool & Machine Co., capital stock $10,000, to manufacture machinery, tools, dies, etc. Incorporators are William and Frank J. Gedemer and E. F. Buelow, all of Racine.

SHEBOYGAN, WIS.—Ernest C. Vasselos, 816 Niagara avenue, will build a shop addition, 53x60 feet, to his public garage and repair shop. Bids closed Nov. 9 with architect E. A. Stubenrauch.

WAUWATOSA, WIS.—The Liberty Foundry Co. has awarded contracts for an addition, 80 x 100 feet, to its plant at Fifty-seventh and State streets.

Business in Canada

NEW WESTMINSTER, B. C.—The Mohawk Lumber Co., will build addition to mills here and install considerable machinery and equipment.

LIVERPOOL, N. S.—The MacLeod Pulp & Paper Co., contemplates building pulp and paper mill here to cost $500,000.

OSHAWA, ONT.—The Rose Excelsior Co., Pickering, Ont., is completing arrangements for the erection of a factory here.

SARNIA, ONT.—The Mueller Mfg. Co. proposes to extend its plant and business for the purpose of manufacturing copper water service pipe. According to Mr. Burleigh, manager, the new pipe, which can be produced at about one-half the cost of lead pipe, will be for house service.

SIMCOE, ONT.—Town council proposes to spend $10,000 on addition to waterworks plant here. Walter C. McCall is clerk.

ST. CATHARINES, ONT.—The Canadian General Rubber Corp. has taken over the building formerly occupied by the Marathon Tire & Rubber Co., here and is making repairs and putting the plant in shape to carry on manufacturing operations.

TORONTO, ONT.—Bids are to be called for the $40,000 addition to the plant of the Coleman Lamp Co., Queen and Davies streets. R. G. Kirby, 539 Yonge street, is general contractor.

MONTREAL, QUE.—The Canada Sugar Refining Co., has awarded contracts in connection with construction of power plant on St. Patrick street. Equipment will be purchased.

TEMISKAMING, QUE.—H. Anvik, care Riordon Pulp Corp., is receiving bids for 600-horsepower boiler stoker for plant here.

THREE RIVERS, QUE.—The International Paper Co., Ltd. is having plans prepared by A. H. White, Park avenue and Forty-second street, New York, for a sawmill here.

THREE RIVERS, QUE.—Fraser-Brace, Ltd., Eighty-third street west, has the general contract for paper mill at Chelsea Falls for the International Paper Co., Notre Dame street, and a power development plant.

New Trade Publications

FIRE BRICK CEMENT—A series of leaflets calling attention to savings in the use of a cement adapted to heat is being issued by the Botfield Refractories Co., Philadelphia. Various uses are covered in individual leaflets.

METAL REELS AND SPOOLS—Mossberg Pressed Steel Corp., Attleboro, Mass., has issued a catalog of its metal spools and reels for the wire industry. It describes the various forms of spools for many styles of wire and gives data to guide the buyer.

BALANCING MACHINE—Precision balancing as practiced by the use of its devices is described by the Gisholt Machine Co., Madison, Wis., in a bulletin just issued. Actual weighing of unbalance and determination of the exact point for correction is claimed for the machine.

FLEXIBLE COUPLINGS—Thomas Flexible Coupling Co., Warren, Pa., has issued a catalog of its flexible couplings for various services. The couplings are described, their parts shown and their adaptations listed. Illustrations show installations and various data are presented. A list of concerns using them is appended.

HARDENING COMPOUND—A preparation for application to concrete floors which have become granular is described in a leaflet by the Goheen Corp. of New Jersey, Newark, N. J. The preparation is said to disolve and recrystallize the surface, giving a new wearing surface.

TRAMRAILS—How production costs may be lessened by modern handling equipment, thus putting the producer in position to compete more keenly in his field is illustrated in a picture book of pocket size by the Cleveland Electric Tramrail Division of the Cleveland Crane & Engineering Co., Wickliffe, O. The pictures show actual installations in a variety of plants.

CASTINGS—Instead of a trip through their foundry at Aurora, Ill., Love Bros., Inc. have issued a handsome album of views of the works and its products for the delectation of those who would know what can be done. The plant was established 44 years ago in a small way and its growth is depicted on the first page. Foundry, machine shop and shipping facilities are fully shown in pictures.

SPECIAL STEEL—In a current booklet the Haynes Stellite Co., New York, gives information as to its product, gained from investigations by the Union Carbide & Carbon Research Laboratories Inc. This information has not been presented previously in printed form and is assembled in response to many requests from engineers. It is of much value to the metal-working trades in which hard cutting tools are used.

WATER SOFTENING—A bulletin containing much information to users of water has been issued by the National Lime association, Washington, D. C. It contains four chapters, devoted to advantages of the use of lime in locomotive water supply, raw water ice, and some variants from accepted formulae in water flows. The matter is authoritative and of much value to engineers concerned with the use or measurement of water.

Subscriptions having been received for these bonds largely in excess of the amount of the issue, the books have been closed and this advertisement appears as a matter of record only.

New Issue

$13,000,000

The Trumbull Steel Company

Fifteen-Year First (Closed) Mortgage Sinking Fund Six Per Cent. Gold Bonds

To be dated November 1, 1925
Authorized $13,000,000

To mature November 1, 1940
To be presently issued $13,000,000

Coupon bonds in interchangeable denominations of $1,000 and $500, registerable as to principal only. Principal and semi-annual interest payable (May 1 and November 1) at The Cleveland Trust Company, Cleveland, Ohio, Trustee. Interest also payable at Bankers Trust Company, New York City. Interest payable without deduction for any Federal Normal Income Tax up to 2%. The Company will refund upon proper application any Pennsylvania, Connecticut or California personal property tax not in excess of four mills, any Maryland securities tax not in excess of four and one-half mills, any Kentucky personal property tax not in excess of five mills, and any Commonwealth of Massachusetts income tax not to exceed 6% per annum. Redeemable by the Company as a whole or in part by lot on any interest date at 103 and accrued interest during the first five years, 102 and accrued interest during the second five years and at 101 and accrued interest during the last five years, as provided in the below mentioned Indenture.

The following information has been summarized by Mr. Philip Wick, President of the Company, from his letter to the Bankers:

Business: The Trumbull Steel Company, Warren, Ohio, located in the well-known Youngstown steel district, and organized under the laws of the State of Ohio in 1912, is one of the leading independent steel manufacturers. Together with its subsidiaries, it has a total annual capacity of 600,000 tons of highly finished steel products including sheets, hot and cold rolled strip steel, tin plates, etc. As a result of the character of its output the Company has customers engaged in a wide variety of industries, such as railroad, automobile, electrical equipment, farm implement, canning, cooking utensil, metal furniture, stove, barrel, keg, etc.

Security: This issue of bonds will be the direct and general obligation of the Company and secured, in the opinion of counsel, by a first closed mortgage upon all the fixed assets of the Company, including real estate, plants and equipment, appraised by The American Appraisal Company as of July 31, 1925 at the sound depreciated value of $35,032,151, or $2,694 for each $1,000 bond of this issue.

The Company's balance sheet as of July 31, 1925, as certified to by Messrs. Ernst & Ernst, and adjusted by them to give effect to the sale of this issue of bonds and $5,000,000 Seven Per Cent. Ten-Year Gold Debentures, already underwritten, shows net tangible assets, available for funded debt, of $44,566,435.

Capitalization

(After giving effect to the present financing)

	Authorized	Outstanding
Fifteen-Year First Mortgage Sinking Fund Six Per Cent. Gold Bonds (this issue)	$13,000,000	$13,000,000
Seven Per Cent. Ten-Year Gold Debentures	5,000,000	5,000,000
7% Cumulative Preferred Stock (par value $100)	15,000,000	9,993,700
Common Stock (no par value)	1,500,000 shs.	576,798 shs.

Earnings: The Company's average annual net earnings applicable to interest, as certified to by Messrs. Ernst & Ernst, for the nine years and seven months ended July 31, 1925, after depreciation and after deducting allowance for inventory adjustment of $3,000,000 covering the period subsequent to September 30, 1919, but before Federal Taxes, were $2,026,711 or ***2.60 times the maximum annual interest requirements of this Issue.*** The Company is now operating virtually at capacity.

Purpose of Issue: The purpose of this issue of bonds, together with the $5,000,000 Seven Per Cent. Ten-Year Gold Debentures, already underwritten, is to fund current indebtedness incurred chiefly in connection with the making of extensive permanent improvements to the properties of the Company.

Sinking Fund: The Indenture securing this issue will provide for Sinking Fund payments to the Trustee of $200,000 semi-annually from January 1, 1927 to January 1, 1936, inclusive, and $300,000 semi-annually thereafter, to be used by the Trustee for the redemption of bonds by lot on thirty days notice at the above mentioned redemption prices. Bonds purchased by the Company may be delivered to the Trustee, however, in lieu of cash Sinking Fund payments at an amount equal to the cost (excluding accrued interest) to the Company of the bonds so purchased, but not in excess of the price at which such bonds could be redeemed by the Company, on the next redemption date succeeding such delivery. The Sinking Fund is calculated to retire approximately 50% of the issue before maturity.

Equity: These First Mortgage Bonds will be followed, upon completion of present financing, by $5,000,000 7% Debentures to be presently issued and by 99,987 shares of 7% Cumulative Preferred and 576,798 shares of no par value Common, which Stocks have a present market value of approximately $13,000,000.

We offer these bonds when, as and if issued and subject to the approval of our counsel. Legal matters pertaining to this issue are under the supervision of Messrs. White & Case for the Bankers and Messrs. Harrington, DeFord, Huxley & Smith for the Company. Delivery will be made in the form of temporary bonds or interim receipts on or about November 24, 1925.

Application will be made to list these bonds on the New York Stock Exchange

Price 96 and accrued interest, to yield over 6.40%

Bankers Trust Company
New York

The Cleveland Trust Company
Cleveland

Otis & Co.
Cleveland

November 12, 1925 Statements presented in this advertisement while not guaranteed are obtained from sources which we believe to be reliable.

European Iron and Steel Statistics

Gross Tons

Pig Iron Production

	United Kingdom	France	Belgium	Luxembourg
Monthly average 1912..	729,000	405,000	192,000	184,800
Monthly average 1913..	855,000	427,000	203,800	209,000
Monthly average 1919..	617,000	198,000	20,600	50,000
Monthly average 1920..	669,500	281,700	92,700	58,000
Monthly average 1921..	217,600	280,300	71,800	79,600
Monthly average 1922..	403,300	428,900	131,500	137,500
Monthly average 1923..	619,900	437,100	179,100	.....
1924				
January	636,600	576,900	205,700	159,700
February	612,700	581,100	.....	162,700
March	668,600	629,500	226,900	183,900
April	618,400	641,100	235,800	182,700
May	650,900	648,100	242,700	181,400
June	607,800	628,900	.....	.....
July	615,600	626,200	243,500	.....
August	588,900	643,400	240,500	.....
September	569,200	631,400	238,700	.....
October	586,400	649,600	242,400	.....
November	583,500	623,900	213,200	.....
December	580,300	654,900	242,700	.....
1925				
January	574,500	658,900	245,600	197,430
February	541,900	627,000	241,800	176,514
March	607,900	688 871	281,560	198,737
April	569,800	686,130	267,850	.....
May	574,700*	695,200	270,500	186,800
June	510,300	692,400	209,400	187,100
July	492,700	712,800	165,800	199,400
August	444,500	701,400	163,400	198,700
September	448,700	.....	.....	192,700

*Revised.

Imports

	United Kingdom	France	Belgium	Germany
Average monthly 1912..	166,400	16,400	87,000	27,300
Average monthly 1913..	185,900	12,900	68,900	25,000
Average monthly 1919..	42,400	113,100	44,400	.....
Average monthly 1920..	92,400	89,000	67,000	26,200
Average monthly 1921..	137,100	38,500	43,300	.....
Average monthly 1922..	73,500	64,300	42,000	152,300
Average monthly 1923..	110,233	58,700	45,500	144,300
1924				
January	141,600	49,100	50,400	101,700
February	.....	59,400	50,900	126,600
March	165,200	58,800	66,500	189,600
April	198,900	64,800	60,400	75,700
May	300,100	50,300	53,000	.....
June	175,500	53,500	49,300	.....
July	201,200	61,400	38,200	.....
August	173,700	66,400	33,100	.....
September	207,200	66,100	44,000	.....
October	241,300	52,500	38,800	.....
November	213,000	57,500	.....	.....
December	221,200	45,200	.....	.....
1925				
January	234,800	26,500	.....	241,800
February	234,900	16,700	.....	47,000
March	244,900	15,500	.....	65,200
April	282,857	16,600	.....	72,700
May	205,424	11,100	.....	95,500
June	201,700	11,100	.....	117,900
July	306,600	19,700	.....	96,900
August	232,800	14,000	.....	91,000
September	194,000	.....	.....	.....

Ingots and Castings Production

	United Kingdom	France	Belgium	Luxembourg
Monthly average 1912..	566,000	363,000	206,000	79,400
Monthly average 1913..	639,000	385,000	202,300	109,000
Monthly average 1919..	658,000	179,000	27,400	32,000
Monthly average 1920..	755,600	250,200	101,300	49,000
Monthly average 1921..	302,100	254,500	65,000	62,300
Monthly average 1922..	486,000	372,000	128,200	114,000
Monthly average 1923..	707,400	408,600	194,483	98,250
1924				
January	694,300	532,600	227,400	144,300
February	.....	546,000	.....	148,600
March	816,900	564,000	237,300	153,600
April	711,500	558,600	237,000	154,400
May	809,700	589,100	246,600	149,400
June	651,500	546,600	.....	.....
July	693,300	556,000	241,200	.....
August	527,500	572,600	234,400	.....
September	645,000	589,000	240,900	.....
October	678,500	599,600	252,400	.....
November	674,300	549,200	213,700	.....
December	551,000	595,700	241,200	.....
1925				
January	605,100	598,600	236,200	170,856
February	652,300	560,100	235,900	157,227
March	684,700	607,076	268,550	178,367
April	597,600	586,977	250,990	.....
May	651,600	587,000	248,800	164,500
June	585,400	590,500	193,600	168,400
July	590,400	615,600	152,700	179,100
August	477,100	607,100	147,900	170,800
September	640,100	.....	.....	177,400

Exports

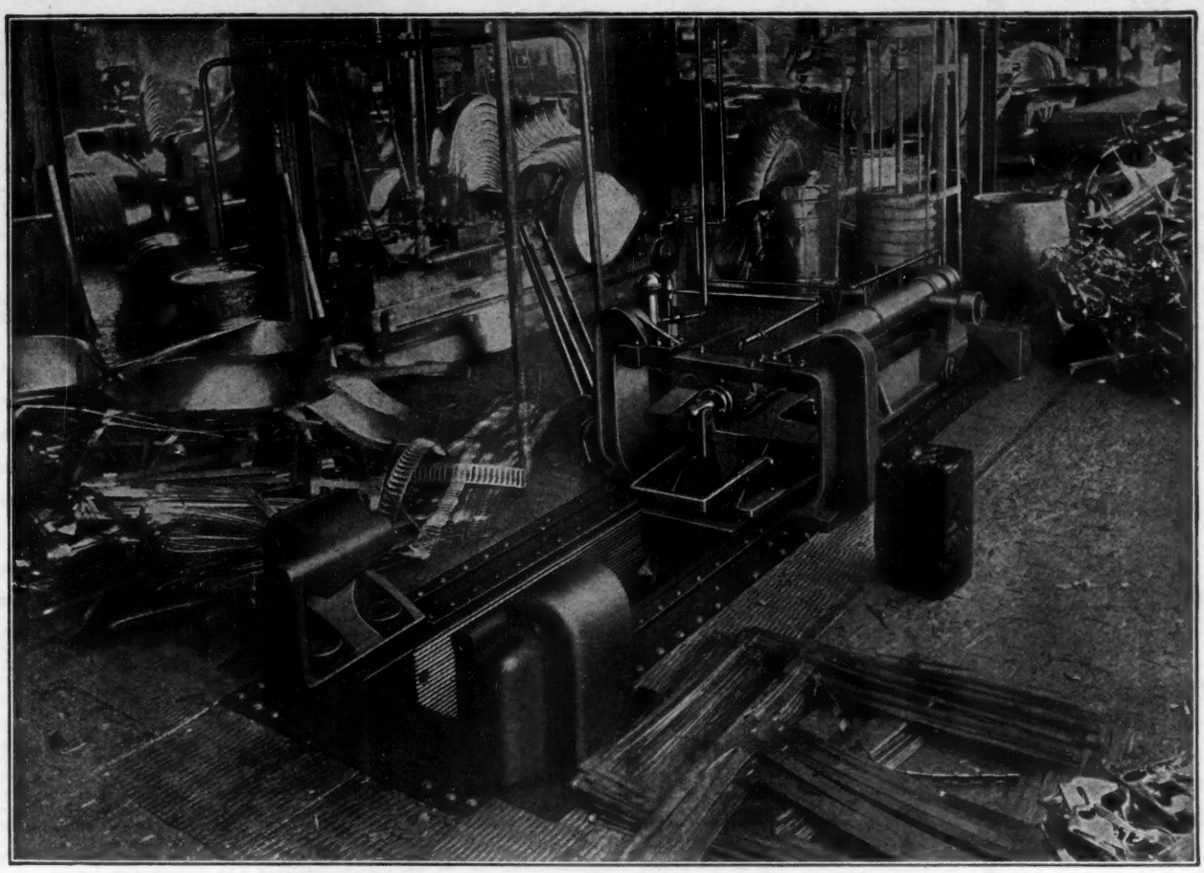
	United Kingdom	France	Belgium	Germany
Average monthly 1912..	400,600	41,500	124,500	482,400
Average monthly 1913..	414,100	48,200	128,800	517,300
Average monthly 1919..	186,100	19,400	14,500	.....
Average monthly 1920..	270,900	74,600	74,300	143,600
Average monthly 1921..	141,700	132,700	75,900	176,000
Average monthly 1922..	283,400	164,000	143,000	209,700
Average monthly 1923..	359,975	173,700	208,466	108,900
1924				
January	337,400	211,700	.....	86,900
February	.....	269,200	240,400	104,000
March	288,200	303,900	290,600	103,000
April	336,800	307,000	294,400	87,700
May	406,900	224,700	327,000	.....
June	324,400	226,300	289,100	.....
July	339,700	166,200	266,900	.....
August	301,100	181,600	278,300	.....
September	263,800	179,500	291,700	.....
October	309,200	213,500	286,600	.....
November	311,600	205,600	.....	.....
December	303,100	284,400	.....	.....
1925				
January	325,400	270,300	.....	270,600
February	298,800	261,100	.....	218,600
March	312,200	281,200	.....	297,000
April	301,027	284,300	.....	218,000
May	322,140	286,200	.....	247,300
June	275,700	318,800	.....	215,100
July	306,600	329,500	.....	251,400
August	287,800	338,200	.....	272,900
September	273,200	.....	.....	.....

American Iron and Steel Exports and Imports

Gross Tons

	Imports	Exports
1925		
January	77,065	141,714
February	92,380	102,302
March	92,110	155,386
April	71,249	155,426
May	68,117	150,612
June	83,330	136,847
July	64,642	138,670
August	68,489	188,963
September	68,445	136,754
1924		
December	69,281	129,376
November	34,300	124,464
October	40,877	158,553
September	45,216	135,894
August	44,928	136,025
July	30,410	138,845
June	60,474	172,982
May	66,805	168,172
April	50,975	132,739
March	39,279	124,762
February	42,054	168,191
January	26,677	251,284
Total	556,733	1,805,064

1923		
December	27,012	179,215
November	26,534	186,770
October	29,884	154,079
September	36,612	173,664
August	45,432	163,010
July	53,448	170,259
June	68,019	172,747
May	75,891	204,988
April	77,909	179,159
March	106,206	165,624
February	67,707	135,182
January	120,080	124,444
Total	734,734	2,009,141
1922		
December	96,358	154,087
November	152,250	124,004
October	184,202	131,542
September	76,393	128,370
August	49,054	144,264
July	62,426	157,027
June	39,154	216,298
May	23,098	229,616
April	18,720	197,562
March	12,774	206,474
February	11,535	133,333
January	13,404	155,962
Total	643,010	1,988,539
Yearly Totals		
1921	117,105	2,156,818
1920	448,833	4,920,913
1919	327,490	4,405,281
1918	168,225	5,372,424
1917	324,565	6,442,240
1916	310,891	5,947,646
1915	282,396	3,532,564
1914	289,775	1,549,554
1913	317,260	2,745,635
1912	225,072	2,947,596
1911	262,457	2,187,725
1910	510,730	1,537,943
1909	363,984	1,243,583
1908	205,845	964,242
1907	662,358	1,301,981
1906	577,809	1,325,740
1905	416,000	1,010,255
1904	266,398	1,167,674
1903	1,178,797	326,590
1902	1,212,484	411,915
1901	221,297	81,211
1900	209,955	286,687



Typical Installation in Well-Known Automobile Plant

WHY SHEET-SCRAP CAN BE PROFITABLY COMPRESSED

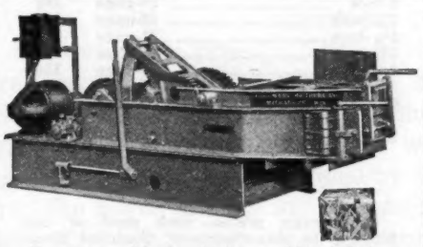
It commands at all times the best price;
It can be more conveniently stored;
It can be more economically handled;
It can be readily held for favorable markets;
It practically eliminates corrosion;
It permits of loading cars to capacity;
It saves much heat in remelting.

LOGEMANN SCRAP-METAL PRESSES

Hydraulic and Mechanical Types

LOGEMANN BROTHERS COMPANY
3126 Burleigh St. Milwaukee, Wis.

Also presses making crucible-size bricks of copper, brass, aluminum and other metals.



Logemann Mechanical-type Metal Baler

Please indicate character of scrap, quantity and heaviest gauge, when writing.

Discounts and Extras

Steel Pipe

Pittsburgh and Lorain basing discounts, jobber's carloads.

Evanston, Ill., and Indiana Harbor, Ind., take differential 2 points less discount or $4 per ton higher net.

Chicago takes differential 2½ points less than Pittsburgh-Lorain basis or $5 per ton higher net.

Butt Weld

	Black	Galvanized
⅛-inch	45	19½
¼ and ⅜-inch	51	25½
½-inch	46	42½
¾-inch	60	48½
1 to 3-inch	62	50½

Lap Weld

2-inch	55	43½
2½ to 6-inch	59	47½
7 to 8-inch	56	43½
9 and 10-inch	54	41½
11 and 12-inch	53	40½

REAMED AND DRIFTED

Butt Weld

1 to 3-inch	60	48½

Lap Weld

2-inch	53	41½
2½ to 6-inch	57	45½

EXTRA STRONG—PLAIN ENDS

Butt Weld

⅛-inch	41	24½
¼ and ⅜-inch	47	30½
½-inch	53	42½
¾-inch	58	47½
1 to 1½-inch	60	49½
2 to 3-inch	61	50½

Lap Weld

2-inch	53	42½
2½ to 4-inch	57	46½
4½ to 6-inch	56	45½
7 to 8-inch	52	39½
9 and 10-inch	45	32½
11 and 12-inch	44	31½

DOUBLE EXTRA STRONG

Butt Weld

½-inch	42	12½
¾ to 1½-inch	45	35½
2 to 2½-inch	47	37½

Lap Weld

2-inch	41	32½
2½ to 4-inch	43	34½
4½ to 6-inch	42	33½
7 to 8-inch	33	25½

Wrought Iron Pipe

Pittsburgh basing discounts, jobbers' carloads. Individual quotations made on delivered basis

THREADS AND COUPLINGS

Butt Weld

⅛ and ¼-inch	+11	+39
⅜-inch	22	2
½-inch	28	11
¾ to 1½-inch	30	13

Lap Weld

1¼ and 1½-inch	Upon application	
2-inch	23	7
2½ to 6-inch	26	11
8 to 6-inch	28	13
7 to 12-inch	26	11

PLUGGED AND REAMED

Two points less than above

EXTRA STRONG, PLAIN ENDS

⅛ and ¼-inch	+19	+54
⅜-inch	21	7
½-inch	28	12
¾ to 1½-inch	30	14

Lap Weld

2-inch	23	9
2½ to 4-inch	29	15
4½ to 6-inch	28	14
7 to 8-inch	21	7
8 to 12-inch	16	3

DOUBLE EXTRA STRONG

Butt Weld

½-inch	+47½	+59½
⅝-inch	+28	+40
1-inch	+34	+40
1¼-inch	+28	+40
1½-inch	+27	+39

Lap Weld

2 and 2½ inches	+13	+25
3 to 4-inch	+ 8	+17
4½ to 6-inch	+ 9	+18
8-inch	+12	

Boiler Tubes

Pittsburgh less carload discounts. Carload 4 points larger

STEEL (Lap Welded)

2 and 2¼-inch	23 off
2½ and 2¾-inch	33 off
3-inch	36 off
4½ to 3¾-inch	38½ off
4 to 13-inch	42 off

CHARCOAL IRON

1½-inch	+22
1¾-inch	+12
2 and 2¼-inch	+ 2
2½ to 3-inch	3
3¼ to 4½-inch	5

SEAMLESS COLD DRAWN

1-inch	56 off
1¼ and 1½-inch	42 off
1¾-inch	32 off
2 and 2¼-inch	27 off
2½ and 2¾-inch	35 off
3-inch	41 off
3¼ and 3½-inch	43 off
4-inch	46 off
4½, 5 and 6-inch	41 off

SEAMLESS HOT ROLLED

2 and 2½-inch	30 off
2½ and 2¾-inch	38 off
3-inch	44 off
3¼ and 3½-inch	46 off
4-inch	49 off
4½, 5 and 6-inch	44 off

SEAMLESS STEEL MERCHANT BOILER TUBES

Extras:

Add $8 per ton for more than four gages heavier than standard and add 10 per cent to theoretical weight.

Add 5 per cent for lengths over 24 feet and not over 26 feet.

Smaller tubes than 1-inch and lighter than standard gage to be sold at mechanical tubing list and discount.

Intermediate sizes and gages not listed above take price of next larger outside diameter and heavier gage.

SEAMLESS STEEL MECHANICAL TUBING

Base Discounts on New List July 1, 1925

Carbon 0.10 to 0.20 per cent	55 off
Carbon, 0.30 to 0.40 per cent	50 off

SEAMLESS STEEL LOCOMOTIVE AND SUPERHEATER TUBES

Net prices per foot f.o.b. Pittsburgh

Outside diameter	Gage	Price
2-inch	12-gage	14¼c
2-inch	11-gage	15c
2-inch	10-gage	16c
2¼-inch	12-gage	16c
2¼-inch	11-gage	17c
2¼-inch	10-gage	18c
3-inch	7-gage	33c
5⅜-inch	9-gage	50c
5½-inch	9-gage	52c

Plus usual extras for forming and for long lengths.

Plate Extras

BASE

Rectangular plates, tank steel or conforming to manufacturers' Standard Specifications for structural steel, dated Nov. 24, 1922, or equivalent, ¼-inch thick and over on thinnest edge, (except for ¼-inch or 72 inches wide when ordered to weight in pounds per square foot—see width and gage extras), 100 inches wide and under, down to but not including 6 inches wide, 5 feet 0 inches long up to published limit in length but not over 80 feet 0 inch, are base. Extras per Pound for Width or Diameter.

All Plates, Rectangular or Otherwise

¼-inch thick and heavier, but not less than 11 pounds per square foot, if ordered to weigh—

Over 100 inches to and including 110 inches	.05c
Over 110 inches to and including 115 inches	10c
Over 115 inches to and including 120 inches	.15c
Over 120 inches to and including 125 inches	.25c
Over 125 inches to and including 128 inches	.50c
Plates less than ¼-inch or lighter than 11 pounds per square foot.	
Over 72 inches to and including 84 inches	.10c
Over 84 inches to and including 96 inches	.20c
Over 96 inches to and including 100 inches	.30c

Over 100 inches add .35c to width extras for plates ¼ inch thick and heavier.

GAGE

Plates not Exceeding 72 inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{16}$-inch; or lighter than 10.2 pounds per square foot to and including 7.65 pounds per square foot ..... .20c

Plates Over 72 inches Wide

Plates less than ¼-inch gage, to and including $\frac{7}{16}$-inch; or lighter than 11 pounds per square foot, to but not including 7.65 pounds per square foot ..... .20c

Plates ordered 7.65 pounds per square foot ..... .30c

QUALITIES

Pressing steel	.10c
Flange steel (boiler grade)	.15c
Ordinary firebox steel	.20c
Stillbottom steel	.30c
Locomotive firebox steel	.50c
Marine steel	1.50c
Hull material subject to U. S. Navy Dept. Specifications for Medium or Soft Steel	.10c
High tensile hull steel subject to U. S. Navy Dept., or equivalent specifications	1.00c
Boiler steel subject to U. S. Navy Dept. Specifications, classes A and B	1.50c

Hull plates to hull specifications, required to stand cold flanging, take extra for flange steel.

Floor Plates

Checkered plates 1.75c

Checkered plates are not furnished to sketch and are rolled from "Stock Steel" only. No physical tests will be made on checkered plates.

INSPECTION

Mill inspection ..... No extra

Charges for other inspection, such as Lloyd's or American bureau of shipping, will be made by inspection bureau direct to buyer.

CUTTING

LENGTH or DIAMETER

All Plates, Rectangular or Otherwise

Five feet and over up to published limit of length, but not over 80 feet....No extras

Under 5 feet to 3 feet inclusive	.10c
Under 3 feet to 2 feet inclusive	.25c
Under 2 feet to 1 foot inclusive	.50c
Under 1 foot	1.55c
Over 80 feet to 100 feet inclusive	.25c

Over 100 feet add .25c plus .05c for every additional 2 feet or fraction thereof.

Regular Sketches

With not more than four straight cuts. (including straight taper plates)

Additional extra ..... .10c

Irregular Sketches

With not more than four straight cuts. (Sketches cannot be sheared with re-entrant angles)

Additional extra ..... .20c